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International Abstract of Surgery

SUPPLEMENT TO

Surgery, Gynecology and Obstetrics

PUBLISHED IN COLLABORATION WITH

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In this number, we have been obliged to depend upon our local abstract staff in obtaining the abstracts of the German surgery. In our subsequent numbers, we will have a close working alliance with the *Zentralblatt für die gesamte Chirurgie und ihre Grenzgebiete* and the *Zentralblatt für die gesamte Gynäkologie und Geburtshilfe sowie deren Grenzgebiete* in the same manner that we have in this number and will have in future numbers with the *Journal de Chirurgie*.

In establishing the first journal in the English language devoted exclusively and comprehensively to indexing and abstracting the surgery of the world, we appreciate keenly our responsibility and realize that our success depends upon the friendly advice and criticism and the loyal support of the surgeons of America and Great Britain and the colonies.

SURGERY, GYNECOLOGY AND OBSTETRICS with the supplement, the new INTERNATIONAL ABSTRACT OF SURGERY — the two combined more than doubling the size and cost of publishing SURGERY, GYNECOLOGY AND OBSTETRICS as it has appeared — will be sent to all paid subscribers of the journal until May, 1913, without additional cost. This will give our subscribers an opportunity to judge of the importance, to them, of this change and to realize, judging from a business standpoint, that the publishers will be obliged to ask a proportionate increase in the subscription price.

It is obvious to any business mind that there are a considerable number of general expenses connected with the publication and exploiting of a single journal that would not be doubled by increasing its size, if it were still issued as one publication. If there is considerable demand for the breaking up of the journal into three separate journals — as, for illustration, (*a*) SURGERY, GYNECOLOGY AND OBSTETRICS in its present form; (*b*) SURGERY, GYNECOLOGY AND OBSTETRICS combined with the INTERNATIONAL ABSTRACT OF SURGERY; (*c*) the INTERNATIONAL ABSTRACT OF SURGERY alone — the combined costs would be considerably more than doubled. It is, therefore, the desire of the editors to publish one comprehensive surgical journal, to meet the requirements of all surgeons, at one price.

Because of this desire, there will be a three months' try-out of the two publications under one cover, during which time there will be no increase in price to our paid subscribers. In the meantime, an extensive campaign will be conducted among our present subscribers with the idea of determining their wishes in the matter. If, as we hope, a large proportion of our present subscribers welcome and support the enlarged journal and a substantial interest is shown by surgeons who have never been subscribers to the present journal, it will be continued as one publication.

FRANKLIN H. MARTIN.

INTERNATIONAL ABSTRACT OF SURGERY

FEBRUARY, 1913

ABSTRACTS OF CURRENT LITERATURE

GENERAL SURGERY

SURGICAL TECHNIQUE

ANÆSTHETICS

Bryan: Läwen's Method of Anæsthesia. *J. Tenn. St. M. Ass.*, 1912, vi, 240. By Surg., Gynec. & Obst.

Disregarding the failures of extradural sacral anæsthesia in the hands of numerous investigators, and following the success of Stöckel, who employed the method in obstetrical work, Läwen established its value in surgical cases. Läwen assigns as reason for failure with his predecessors that the patients were not kept in the upright position during and following the injection until anæsthesia occurred. If the upright posture cannot be maintained, the body may be placed in a reclining position with the pelvis lower than the thorax. The second reason for previous failures was that it required a longer time for the anæsthesia to be efficient here than elsewhere, viz., 10 to 25 minutes. The solutions employed are made as follows:

No. 1.	Sodii Bicarb C. P. (Merck.)	0.15
	Sodii Chlorat	0.1
	Novocaine	0.60

Dissolve in 30 cc. of distilled water, giving a 2 per cent solution.

No. 2.	Sodii Bicarb C. P. (Merck.)	0.2
	Sodii Chlorat	0.2
	Novocaine	0.60

Dissolve in 50 cc. of distilled water, giving a 1.5 per cent solution.

The powder is placed in distilled water, brought to a boil (einmal aufgekocht), cooled down immediately, and five drops of adrenalin chloride 1-1000 are added. It is then ready for injection. The dose of No. 1 is 20 cc. and of No. 2, 20 to 25 cc., injected at the hiatus sacralis, which is an easy procedure unless the membrane covering the hiatus has ossified.

The following nerves are blocked: anococcygeal, internal pudic, inferior hæmorrhoidal, perineal, and dorsalis penis or clitoridis. Also the visceral branches of the third and fourth sacral, and occasionally branches of the first and second sacral.

Stöckel employed the plan in 141 cases, Läwen in 80 cases, Siebert in 52 cases. Bryan in 4 cases. It is almost uniformly productive of complete local anæsthesia and has produced no deaths and no sequelæ. The ill effects at the time are negligible.

Crile: Anoci-Association; A New Principle in Operative Surgery. *Texas St. J. M.*, 1912, viii, 136. By Surg., Gynec. & Obst.

In this article, Crile made use of a thorough knowledge of physiology of the nervous system and psychology in explaining his new principle in operative surgery. Anoci-association was the word coined by him and used to designate a condition of the patient in which harmful stimuli (noci-associations) are prevented from reaching the brain by blocking or paralyzing the receptor mechanisms by anæsthetics or narcotics. When these harmful stimuli, whether arising from fear on part of patient or from trauma to peritoneum or viscera, reach the brain, they give rise to exhaustion of the brain cells and excessive discharge of nervous energy. With this dissipation of nervous energy there results a general functional weakness, which gives rise clinically to condition of shock. In speaking of the part played by anæsthetics in producing brain-cell exhaustion, he states that although ether anæsthesia produces unconsciousness it apparently protects none of the brain cells against exhaustion from trauma of surgical procedures.

With the use of nitrous oxide anæsthesia there is approximately only one fourth the exhaustion of equal trauma under ether.

Considerable detail was given in discussing the effect of the emotions in causing morphologic changes and exhaustion in brain cells. Crile sug-

gests the following means to minimize or fully abolish the factors which act in an injurious manner upon the patient:

1. Great care and attention to details on part of nurses, internes, and operators.
2. Administration of small dose of scopolamin and morphia previous to operation.
3. Use of nitrous oxide given by trained nurse anæsthetist in place of ether.
4. Infiltration of entire operative field with novocaine or quinine and urea hydrochloride.
5. Relief of gas pains by use of hot packs, opiates, and enemata.

His recommendation of the principle of anoci-association is based, not altogether upon the reduction of mortality rate in his cases, but also upon the almost incredible state of preservation of patients' nervous equilibrium and the great diminution of post-operative nervous impairment.

R. W. McNealy.

Nicolich: Spinal Anæsthesia in Genito-Urinary Surgery (Rachianesthésie en chirurgie génito-urinaire). 26th Cong. de l'Ass. fran. d'Urol., Paris, Oct. 9, 1912. By Journal de Chirurgie.

Many surgeons have ostracised spinal anæsthesia too completely. Thus Legueu, in his excellent Traité d'Urologie, says that he has abandoned it absolutely and that it may remain only as an exceptional method to be employed in special cases when all other methods of anæsthesia are contraindicated. Nicolich finds that this is an exaggerated pessimism, and that we too often forget the accidents which are caused by chloroform.

Since 1907 he has performed all operations on the genito-urinary organs with spinal anæsthesia. He has adopted the method of Jannesco, and until now has been very well satisfied with this method of anæsthesia. Saving accidents, it has never caused the death of any of his patients, while he has lost 3 patients (2 nephrectomies and 1 cystotomy) as the result of chloroform anæsthesia.

Nicolich has performed 409 operations with stovaine anæsthesia, 148 upon the kidney, 42 upon the prostate, 85 upon the bladder, 12 upon the perineum, 124 upon the genital organs. The youngest of the patients whom he has operated was 9, the oldest 87 years of age. The dose of stovaine and strichnin varied in ratio with the age and the general condition of the patient and the probable duration of the operation. The maximum dose for operations on the kidney was 5 cg. of stovaine; for operations on the bladder and on the prostate 3 cg. always sufficed.

Nicolich has examined the urine of a number of patients who showed no trace of albumin before the operation, and he has never demonstrated traces of albumin after spinal anæsthesia. He has observed post-anæsthetic headaches rather frequently, and cannot say that strichnin, added to stovaine, has avoided this complication. In 5 cases he has observed absence and in 18 cases insufficiency of anæsthesia. Vomiting during and after the operation was exceptional.

The grave symptoms which Nicolich has not been able to relieve in the patients upon whom he has operated comprise the following: complete paralysis of the bladder, once — this symptom disappeared two weeks after the operation; syncopal condition in three patients who were very aged — one or two injections of caffeine were the cause of this condition; ocular paralysis, once — this manifested itself 15 days after the operation and disappeared within three weeks; hemiplegia of the right side and aphasia — this complaint developed 15 days after the operation and lasted twelve days. Nicolich has but very rarely observed a rise in temperature.

He is therefore persuaded that spinal anæsthesia is decidedly superior to chloroform and ether for use in genito-urinary surgery, because it is less dangerous and because it makes surgery of the bladder and the prostate much easier.

Its opponents too often forget the bad effects of chloroform and of ether, and do not take the trouble to learn whether the accidents observed after spinal anæsthesia are a consequence of the disease itself, of a mistaken indication, or of too strong a dose of stovaine. J. Dumont.

Nagelschmidt: Electric Sleep. *Berl. klin. Wchnschr.*, 1912, xlix, 1849. By Surg., Gynec. & Obst.

Nagelschmidt discusses the various currents employed in medicine. The intermittent galvanic current of Leduc possesses peculiar properties. It produces local analgesia and, if centrally applied, general narcosis. The dose for the stimulation of nerve or muscle can be regulated. The disadvantages of the current are its electrolytic effect upon the tissue, thus limiting the quantity of application. Faradic and sinusoidal currents are not constant. Nagelschmidt has constructed an apparatus which may be attached to any multostat. This induced current can be measured and regulated. It differs from the Faradic current inasmuch as it is milder and stimulates not only the pain-carrying fibres but also those conveying heat and cold sensation. A stronger current produces complete anæsthesia in the extremity, so that an operation may be done. Tactile sense is partially retained. Applied to the brain of animals, complete narcosis ensues as with the current of Leduc. The electric sleep seems not to be followed by any bad consequences. In one animal narcosis was pushed until pulse and respiration ceased. Rhythmical application of the same current resuscitated the animal. Control animals remained dead. E. C. Riebel.

SURGICAL INSTRUMENTS AND APPARATUS

Wakefield: The Use of the Continuous Fixed Laparotomy Sponge. *Am. J. Obst.*, N. Y., 1912, lxvi, 549. By Surg., Gynec. & Obst.

In order to obviate the leaving of a sponge in the abdomen, Wakefield has prepared for his use bags which contain each a long strip of gauze of suitable

width, one end of which is stitched securely into the bottom of the bag, the other end being free. The strips are of such length and width that three bags are ample for the usual laparotomy; several bags are in readiness, however, for each operation. In the laparotomy sheet are three pockets, one at the upper end and one on each side, which are open towards the slit in the sheet and which are each large enough to loosely hold a bag. The bags are held securely in the pockets by means of safety pins or clamps. As a sponge or pack is needed, the end of a strip is withdrawn from the bag and, as soiled is placed in the pocket alongside the bag; as a fresh sponge is needed, the unsoiled remaining portion of the strip is utilized. When additional gauze is needed, the pocket is emptied of its soiled contents and a fresh bag is inserted. In case the sponge is infected, the fresh bag is pinned or clamped over the pocket to shut off the infected area. When a hot pack is required, sufficient of a strip is withdrawn from a bag, wrung out of hot salt solution and placed in position. Wakefield reports that he is very much pleased with the method.

N. Sproat Heaney.

SURGERY OF THE HEAD AND NECK

HEAD

Henschen: Diagnosis and Operative Treatment of Traumatic Subdural Hæmorrhage. *Arch. f. klin. Chir.*, 1912, xcix, 67. By Surg., Gynec. & Obst.

Henschen discusses traumatic subdural hæmorrhage in the newborn and in adults. In the newborn, subdural hæmorrhage is frequently brought about by forceps extraction, protracted labor, contracted pelvis, abnormal positions of the head, hydrocephalus, etc. Even in a spontaneous rapid labor hæmorrhage has been known to occur, probably due to a sudden rush of blood into the delicate cerebral veins. Other factors are anomalies of the cranial bones, intracranial stasis due to an enlarged thymos or thymoid or a cord twisted around the neck, weakened vascular walls from alcoholism and other poisons and toxins absorbed from the mother, and, finally, hæmorrhagic diathesis of luetic children.

The hæmorrhage usually takes place from the large veins of the pia mater or from the cerebral sinuses. Beneke has reported 14 cases of tears in the tentarium producing the hæmorrhage. Stoltzenberg found a tear in the intervertebral joint capsule of the cervical vertebræ in 12 per cent of asphyxiated newborn children. In general, the amount of extravasated blood is from 40 to 70 cc., most of which is at the site of the injury. The hæmorrhage is usually unilateral, less often bilateral or diffuse, and most frequently located under the parietal bone. The hæmatoma may be resorbed or encapsulated. Infection sometimes occurs. Pachymeningitis hæmorrhagica interno may result. The cortex compressed by the hæmatura undergoes softening, atrophy, and ultimately sclerosis with cyst formation and parencephalic defects. In infants, the brain is protected somewhat by the elasticity and expansibility of the skull. The importance of subdural hæmorrhage in the etiology of the infantile hemiplegias and diplegias known as Little's disease has been recognized for a long time. Epilepsy and idiocy are concomitant features. Hemianopsia, cerebellar ataxia, and pseudo-balbar palsies have been reported in hæmorrhages involving the cerebellum.

Children may be born dead, or after an interval of hours or days following normal labor become suddenly asphyxiated and die with signs of increased intracranial pressure. The hæmorrhage may increase after birth owing to a constant oozing of blood. This occurs particularly when Schultze's swingings are used to resuscitate the child. The danger of starting a fresh hæmorrhage by this method is obvious.

The symptoms vary according to the location of the hæmaturia below or above the tentorium, as has been pointed out by Seitz. A supratentorial hæmorrhage is indicated by extreme restlessness, primary bulging of the large fontanelles with blunting of their edges, widening of the lambdoid suture, narrowing of the pupil on the side of the hæmorrhage, conjugate deviation of the head and eyes, increased reflexes, and slowing of the pulse and respirations. Motor symptoms such as twitching of the face, arms, or legs, and paresis of the facialis, hypoglossus, or accessorius may occur. Lumbar puncture is negative. The best method of diagnosis is puncture of the cranial subdural space through the outermost corner of the large fontanelle.

The symptom-complex of peribullar or infratentorial hæmorrhage includes deep respirations, localized cyanosis, stiffness of the neck, spasticity of the limbs, convulsions, and secondary bulging of the fontanelles, due to stasis and œdema. Lumbar puncture, if done early, shows a hæmorrhagic fluid.

Operative interference is indicated in nearly every case, although the prognosis is absolutely bad. In cases of slight hæmorrhage of the convexity, puncture and aspiration of the extravasate through the large fontanelle should be attempted. A small trephine opening may be used in some cases. Cushing has operated on 9 cases, and successfully in 4, by making an osteoplastic flap of the parietal bone, splitting the dura and washing the blood clot off with salt solution. Drainage is indicated when the hæmorrhage cannot be stopped. In the peribullar hæmorrhages, puncture and trephining are useless. French authors report excellent results from repeated lumbar puncture. Henschen thinks

that a small trephine opening behind the mastoid may do some good.

In older children and in adults, 246 cases of traumatic subdural hæmorrhage have been reported. The hæmorrhage may come from the middle meningeal artery, the carotid artery or the arteries of the convexity, especially the sylvian artery. The large veins of the pia, the Pacchionian bodies, the internal jugular vein, or the venous sinuses may be responsible for the hæmorrhage. Lacerations, compression, or contusion of the brain substance are etiologic factors in some cases. A circumscribed hæmatoma over one hemisphere is much commoner than a diffuse hæmatoma. A diffuse hæmatoma may occur primarily from a massive hæmorrhage, or secondarily by rupturing the primary clot and gravitating to the base of the brain, where it may cause sudden death by entering the fourth ventricle. A primary circumscribed hæmatoma anatomically may be (1) peribullar, (2) median intracerebral, or (3) over the convexity.

Cortical irritation is produced by the denser portions of the clot. Small clots may not show any symptoms till increased intracranial pressure is produced by a serous exudation into the subarachmoid space with or without œdema of the brain substance.

The anatomical changes produced by slowly absorbed hæmatomas vary from simple atrophy and sclerosis to encephalitis, leptomeningitis, pachymeningitis, and cyst formations.

The clinical picture is extremely variable. Most cases do not show a so-called "free interval." The pulse is normal in many cases, according to Kocher. The symptoms are usually progressive, with localized headache, delirium, meningeal symptoms, motor symptoms, and paralysis. The diagnostic cerebral puncture of Neisser and Pollock is the surest diagnostic procedure.

Of 166 operated cases, 113 were saved. Operation should be done to prevent post-traumatic epilepsy. The danger of secondary hæmorrhage, the occurrence of continuous primary epileptiform attacks, the danger to the cortex from continual long pressure, the uncertainty of the course of the increased intracranial pressure phenomena, and the excellent prognosis of the operation, all urge immediate operative interference. The opening into the skull should be made over the centre of the extravasate. A small trephine may be sufficient. The bulk of the clot should be removed. In every case where there is a possibility of secondary hæmorrhage a drainage tube should be left in.

Henschen concludes by giving 3 case reports.

E. P. Zeisler.

Hartmann: Cyst of the Brain; Extirpation; Cure (Kyste du cerveau; extirpation; guérison). *Bull. et mém. Soc. de Chir. de Par.*, xxxviii, 32, 1215.

By Journal de Chirurgie.

Hartmann has operated a young man 18 years of age for subcortical cyst of the brain, which seemed to be traceable to a meningitis which had occurred at the age of five. This meningitis had at first provoked a paralysis, with contracture of the left upper limb, and identical condition, but much less marked, in the left lower limb. Finally it caused epileptic crises, which of late had become more and more frequent, as many as 10 to 12 attacks occurring within 24 hours.

After craniectomy, Hartmann discovered a brownish area in the cortex of the right hemisphere. This he punctured and then incised without success. Below it, however, he could feel with his finger a small round tumor, the size of a small cherry, which could be enucleated with the greatest ease and without hæmorrhage.

The effects of the operation were very gratifying, as the patient has not had a single crisis nor the slightest headache; he finds himself better than he had ever been before.

The tumor appeared to be a cyst with a fibrous wall of about 3 mm. in thickness. Its external surface was smooth and evenly rounded. Its cavity was filled with a fibrinous mass of a slightly reddish brown color, recalling the contents of old vaginal hæmatoceles.

J. Dumont.

NECK

V. Mutschenbacher: The Conservative Treatment of Tubercular Glands of the Neck (Ueber die konservative Behandlung der tuberkulösen Halslymphdrüsen). *Beitr. z. klin. Chir.*, 1912, lxxx.

By Surg., Gynec. & Obst.

There is still lacking a unanimity of opinion among surgeons regarding the treatment of surgical tuberculosis, including tubercular glands of the neck. In the beginning, the treatment of surgical tuberculosis was radical; there were extirpations, enucleations, arthrotomies, resections, and amputations. These radical measures were displaced by conservative ones which gave better results. Tuberculosis possesses a greater tendency to spontaneous cure than most of the other infections. This is especially true in surgical tuberculosis of children. The ideal treatment is radical extirpation where this can be practiced. Von Bergman's rules for operation still obtain: (1) The disease must be confined to one gland or a few contiguous nodes; (2) there must exist no periadenitis, nor periglandular phlegmon.

Von Mutschenbacher is a strong advocate of conservatism, having operated upon only 9 per cent of the 1344 cases which he treated in the last four years. The cases are divided by him into three clinical groups: Group 1, solid hard glands; Group 2, softened broken-down glands covered by intact skin; Group 3, suppurating glands with sinuses or ulcers.

Group 1. Treatment by the various ointments and oils has been disappointing. The medicament has no specific value, and the massage employed in its application does harm by dissemination of the disease. The value of fresh air treatment at the seashore or in the mountains is emphasized. Diet is of great importance in these cases, since Heubner

and Czerny have shown that alimentary intoxications, as well as improper diet and overfeeding, bring about the so-called status lymphaticus or exudative diathesis of children. There is a hyperplasia of lymphoid tissues and mucous membranes, associated with a heightened susceptibility to infection. Individual metabolism should be studied with a view of arriving at a proper diet. In general, vegetable proteids, carbohydrates, and fruits are preferred to milk and eggs. The Röntgen ray is a most valuable means of treatment, and compares most favorably with operation. Under its influence lymphoid tissue disappears, leaving only stroma.

To Finsen is due the credit for demonstrating the value of heliotherapy, where the benefits derived depend upon the action of the ultra-violet rays. Under the influence of the rays of the sun, oxidation in the tissues is promoted, and there is an increased amount of carbon dioxide given off. Red and white corpuscles are increased in number. High altitudes are preferred, owing to the purer air. Rollier advises the exposure of the entire body to the sun, but it has been found that even a local exposure of a diseased area does good. Iron and arsenic are administered internally.

Group 2. When softened, broken-down glands are incised and curetted, the result is usually a large open wound which heals slowly, leaving an unsightly scar. One of the oldest methods of treating these cases consisted in aspiration of the pus and injection of some remedy. Buehner used arsenic; Bruns, iodoform oil; Calot, naphthol camphor; Hueter, carbolic acid; Landerer, balsam of Peru; and Lannelongue, chloride of zinc. None of these remedies is a specific, but all act in such a way as to promote the exudation of lymphocytes, which, aided by their ferments, assist absorption. After aspiration, the author injected a 10 per cent iodoform-glycerin emulsion, with very satisfactory results.

Group 3. Aggressive surgical treatment in this group of cases has proven unsatisfactory. Excision and curettage generally fail to cure. All that is done is to keep the wound clean and employ the general measures before mentioned.

CONCLUSIONS

1. Surgical treatment should be either extremely radical or absolutely conservative. Such procedures as partial excision or curettage do more harm than good.

2. Always begin treatment conservatively, because it can do no harm and frequently converts an inoperable case into one favorable for radical treatment.

3. Conservatism should be practiced in cases of recurrence following operation. WILLIAM HESSERT.

Sasaki: Experimental Study of the Cause of Goitre. *Deutsche Ztschr. f. Chir.*, 1912, cxix. By Surg., Gynec. & Obst.

E. Bircher, who has experimented upon different animals (dogs, monkeys and particularly rats) with so-called "Korpfbrunnenwasser" (goitre water), found that he could produce nodular and parenchymatous hypertrophy and symptoms similar to those in man, by injecting the filtrate of the water which had been passed through a dense filter. While Wilms was of the opinion that soluble toxins, possibly from decaying organic matter, were the cause, Bircher was of the opinion that the substances were of colloidal nature. Sasaki examined 125 rats with regard to this question. After feeding with different toxins, such as decaying meat or bad rice, or after injecting dirt or excrements, he found that he could produce distinct hypertrophy in the rat. This could be proven by dissection and microscopic examination. Feeding at the same time, or injecting, potassium iodide or iodine failed to produce struma. CARL BECK.

Curschmann: Intermittent Symptoms of Exophthalmic Goitre. *Ztschr. f. klin. Med.*, 1912, lxxvi, 242. By Surg., Gynec. & Obst.

Observation of 3 patients, one with tabes dorsalis and two with bronchial asthma, who presented intermittent attacks of exophthalmic goitre. The tabetic was in the moderately atactic stage and suffered during severe attacks of gastric crises from fully developed symptoms of Graves' disease with bilateral exophthalmos, symptoms of Garfe and Stelwag, considerable thyroid enlargement, tachycardia, sweating and tremor of the hands. These symptoms disappeared originally with cessation of the crises; later, about 1½ years before death, exophthalmos and thyroid enlargement persisted in the intervals between the crises. The author lays stress upon the coincidence of the thyroid attacks with the gastric crises. Malaise was the first to point out that these attacks might be due to involvement of the sympathetic system; later investigations showed that they are due to sympathetic or vagus affections. The intermittent character of the attacks and their coincidence with abdominal crises stamp them as products of vago-sympathetic lesions. Papillary sympathetic symptoms were insufficiently observed on account of the Argyll-Robertson pupil. Sympathicotonic symptoms predominated during the crisis, in particular the rise in blood pressure and the tachycardia. Anacidity or subacidity of the gastric juice is a sympathicotonic symptom. This was present between and during the attacks. The profuse sweating and dermatographia may be considered as due to vagatonis. The prompt response to adrenalin administration speaks again for the sympathetic origin of these Graves symptoms. Imitation of the thyroid gland may be of nerous (sympathetic), inflammatory and genital origin. In tabes the thyroid symptoms are neurogenous. The locality in the nervous system where these imitations originate is still undetermined. Degeneration of the posterior roots shows changes in the sympathetic fibres passing through the posterior roots. Morat and others suppose affections of the thoracic sympathetic to be the cause of vasodilatory swelling

and hypersecretion of the thyroid gland. The intermittence is based upon the functional peculiarities of the vegetative system, inasmuch as chronic noxæ of anatomical or functional nature produce disturbance only when a certain inherent tolerance has been exceeded.

Two cases of bronchial asthma presented attacks of exophthalmic goitre symptoms synchronous with asthmatic attacks. Profuse diarrhœa, physical disturbance, in conjunction with all the other classical symptoms, were marked. Pharmacological tests were as follows: Marked adrenalin mydriasis, increased tolerance to filocarpin (sympathicotonic), adrenalin-glycosuria-polyuria test negative (vagotonia). The symptoms of intermittent Graves' disease in these cases may be interpreted in the same manner as in the tabetics; namely, as due to imitation of the nerves regulating the secretion of the thyroid gland. The cases of asthma did not show thyroid enlargement. This is not strange, as the same absence of thyroid swelling is found in cases of genuine exophthalmic goitre. E. C. Riebel.

[Monograph.] Cushing: The Pituitary Body and Its Disorders. Clinical States Produced by Disorders of the Hypophysis Cerebri. J. B. Lippincott Company, Philadelphia and London, 1912.
By Surg., Gynec. & Obst.

A résumé of a book such as this implies a somewhat unsatisfactory presentation of a practically new realm in medicine. It means an absence of detail so essential to a comprehension of these advances, and a loss, furthermore, of the author's style and enthusiasm which suggest, in a way, the stimulating environment of the book's birthplace. The following outline, then, necessarily can be little more than an amplified index of the investigator's work in this direction.

As Prof. Cushing says in his preface, "There are few subjects in medicine which promise a wider overlap upon the fields of many special workers than this one of hypophyseal disease. From the frequent direct implication of the optic nerves by the glandular enlargements, the ophthalmologist has often been the first to recognize these maladies. The neurologist's interest was early aroused through the pressure disturbances on part of the encephalon, and will be reawakened in view of the possible relation of epilepsy to glandular insufficiency. The gynecological and genito-urinary clinics have long been frequented by the fat amenorrhœics and impotent males with hypophyseal disease; and the studies of Erdheim and Stumme will give the scientific obstetrician reason for study for years to come. The experimental and morbid anatomist has been aroused to renewed interest in ductless glands, particularly from the standpoint of their interrelational activity. The importance of focusing a knowledge of these states upon the internist, and especially upon the pediatrician, is evident when we realize that, except for the adult acromegalic conditions, the manifestations of hypophyseal disease have been almost entirely overlooked; and now that organotherapy promises much for all cases of glandular insufficiency, whether adult or infantile, it will need no prodding to bring this about.

"Specialists whose activities are as divergent as those of the actinographer and the physiological chemist are now called upon, not only to aid in matters of diagnosis, but it lies in their province to add materially to our further knowledge of the subject. To the general surgeon, duties now fall which a few years ago were entirely unanticipated — duties similar to those he has assumed in the case of such thyroid enlargements as are productive of pressure disturbances. And, needless to say, to the operating specialist in maladies of the nose and throat the subject is of prime importance, not only because the hypophysis itself abuts upon his preserves, but for the special reason that there exists a pharyngeal organ which may possibly be a not infrequent seat of disease and which may possess some physiological properties of importance to the organism."

The book, in large part, represents a correlation of a series of experimental investigations with a number of clinical states. The former make it seem very probable that such syndromes as these are due to disorders of hypophyseal functions. In acromegaly, for example, experimentalists had been endeavoring unsuccessfully for years to reproduce this picture by glandular extirpation. Not until the illuminating studies of 1908–1909 in the Hunterian Laboratory did it become known that animals who survive for long periods after partial extirpations exhibit an unmistakable symptom-complex of lessened glandular activity — a picture the reverse of acromegaly.

PART I

This concerns the anatomy, physiology, pathology and chemistry of the hypophysis. "Its extraordinarily well protected position, its presence in all vertebrates and persistence throughout life, its remarkably disposed and abundant blood supply, would of themselves be enough to stamp the hypophysis as an organ of vital importance. But, in addition, sympathetic nerve fibers have been demonstrated passing along these vessels to the gland."

The reactions of posterior lobe extract (acute effects) are quite similar to those of extracts of the adrenolin medulla. The extract contains, moreover, a powerful galactogogue substance, said to be more powerful than that possessed by extracts of the corpus luteum. The presence of the active principle

of this lobe in the cerebrospinal fluid is, "claimed on the basis that corresponding physiological reactions are obtained by the injection of slightly concentrated fluids of both man and animals."

"The anterior lobe is, relatively speaking, inactive, such reactions as occur with its extracts being attributable to traces of pars intermedia in the preparations."

"Repeated subcutaneous injections of sterile extracts or emulsions of the whole gland or of the posterior lobe alone, given subcutaneously (chronic effects), are apt to lead to emaciation." This is the reverse of that effected by partial extirpation leading to states of insufficiency, and indicates a stimulus to metabolic processes. No noteworthy changes were detected following corresponding injections of pars anterior extracts. The results from ingestion of extracts (dogs) have been largely negative.

With glandular transplantation experiments, the results thus far indicate some therapeutic possibilities for the method. Certain definite constitutional disturbances were observed in animals which had recovered after partial hypophysectomies, viz.: a widespread adiposity, nutritional changes in the skin and its appendages, disturbances of carbohydrate metabolism, of body temperature, of growth, and of renal secretion, sexual inactivity or actual atrophy of reproductive glands in some cases, and histological modifications in most of the other ductless glands. Such disturbances simulate some of the clinical syndromes observed in man; "and it was these findings that gave the first experimental proof that certain heretofore recognized clinical syndromes are a consequence of lessened glandular activity."

In cases of anterior lobe deficiency (pituitary gland proper) it was found that a thermic reaction occurred after injections of boiled anterior lobe extracts. This has been used as a clinical test of states of anterior lobe deficiency.

Certain interpretations are drawn by the author from the results of his own and other laboratories: "Normal posterior lobe activity is essential to effective carbohydrate metabolism, an intravenous injection of posterior lobe extract produces glycogenolysis, and its continued administration in excessive amounts leads to emaciation. A diminution of posterior lobe secretion occurring in certain conditions of hypopituitarism (whether experimentally produced or the result of disease) leads to an acquired high tolerance for sugars, with the resultant accumulation of fat."

The first experiences "with hypophysectomized adult canines deprived of all but a fragment of the pars anterior disclosed a clinical syndrome — adiposity, increased sugar tolerance, lowered body temperature, reversive sexual changes, etc., the experimental counterpart of what will be recognized in man as an adult form" — syndrome-hypopituitarism originating before adolescence versus hypopituitarism originating subsequently.

The production of corresponding hypophyseal defects in puppies later revealed a syndrome (persistence of sexual infantilism and the additional factors of skeletal undergrowth and evident psychic disorders) corresponding with the human *typus Fröhlich*.

A consideration of the pathological aspects of the gland makes it clear that "in every case of increased intracranial tension, from whatever source, there probably occur secondary changes in the hypophysis, often with gross deformations and resultant functional disturbances which frequently elicit recognizable clinical manifestations."

The Hunterian Laboratory studies have shown the important relation of at least the posterior lobe to the excretion of carbohydrates. Since the gland may be in condition either of physiological competence or of incompetence, it is necessary that cognizance of such conditions be taken into account in all metabolism observations in these states.

PART II

Whereas, Part I concerns the facts "acquired largely through anatomical and experimental researches upon animals," this section deals with the clinical and pathological aspects of the question in man.

Because it is often impossible, on clinical grounds, to tell whether or not many of the interpeduncular tumors are actually glandular in origin; and because recognizable hypophyseal symptoms brought about by distant lesions — cerebral tumors for example — prove to be so uniformly present, the author makes five subdivisions of these pituitary cases.

Group I. "Cases of dyspituitarism in which not only the signs indicating distortion of neighboring structures, but also the symptoms betraying the effects of altered glandular activity, are outspoken."

Group II. "Cases in which the neighborhood manifestations are pronounced, but the glandular symptoms are absent or inconspicuous."

Group III. "Cases in which neighborhood manifestations are absent or inconspicuous, though glandular symptoms are pronounced and unmistakable."

Group IV. "Cases in which obvious distant cerebral lesions are accompanied by symptomatic indications of secondary pituitary involvement."

Group V. "Cases with a polyglandular syndrome in which the functional disturbances on the part of the hypophysis are merely one, and not a predominant feature of a general involvement of the ductless glands."

"Under each of the first four groups there will naturally occur three subdivisions, namely: (1) the cases in which the clinical manifestations of past or of existing *hyperpituitarism* predominate (more particularly overgrowth, resulting in gigantism when the process antedates ossification of the epiphyses — *typus Launsis;* resulting in acromegaly when it is of later occurrence — *typus Marie*); (2) those in which the clinical manifestations of *hypopituitarism* predominate (adiposity with a persistence of both

skeletal and sexual infantilism when the process originates in childhood — *typus Fröhlich*; adiposity with sexual infantilism of the reversive form when it originates in the adult — the type we have explained on experimental grounds); and (3) the mixed or transition cases exhibiting some features of both states— in other words, with evident dyspituitarism."

The elastic character of these groupings is shown by the statement, "We must fully realize . . . that as conditions change these cases will naturally shift from one to another of the groups . . ." Again, ". . . this tentative classification fails to take into account the progressive nature of the disease."

That this arrangement is only temporary is well shown in the following: "We are unquestionably approaching a stage in our knowledge when the classification or grouping of the cases, here employed as a provisional basis for clinical use, will no longer be necessary. However, it may temporarily serve others, as it has served us; and some one, it is to be hoped, will provide a more useful subdivision, if any subdivision at all is necessary."

"Clinical *states of increased functional activity* — states, unfortunately, which as yet are beyond experimental reproduction — have with but few exceptions been shown to be associated with an enlargement of the gland caused by a hyperplastic or adenomatous process.

"On the other hand, clinical *states of diminished functional activity*, when associated with tumor, may be due either to an actual loss of glandular tissue from partial destruction by an infectious or malignant growth, by vascular disease, hæmorrhage, cyst formation, or what not, or, on the other hand, and what is perhaps more common, to the mere blocking of the secretory activities from a superimposed interpeduncular growth."

Two hundred pages are devoted to a detailed presentation of cases illustrating the various groups of cases. These are discussed in a uniform manner, an outline of which is here drawn:

Case number; name; age; occupation; address; complaint; family history; personal history; present malady; physical examination — height, weight; visceral examination — cardiovascular, blood pressure, urine, blood; analysis of hypophyseal manifestations; neighborhood symptoms, (X-ray of sella, eyes; pharyngeal exam., etc.); general pressure symptoms (eye-grounds, headache, etc.); glandular symptoms (head, hands, feet, cutaneous, hair, subcutaneous); carbohydrate tolerance; polyuria thermic reaction; other ductless glands (genitals, thyroid, adrenals). Operation. Histological picture of tissue; subsequent reports; interpretation.

This section of the book abounds in splendid illustrations of patients and pathological material. Visual field charts and X-ray plates are reproduced in each case presented.

PART III

Here is given a general review of the incidence, symtomatology, and treatment of pituitary body diseases. "Among the factors of an incidental nature which deserve especial comment are inheritance, developmental defects, trauma, physiological epochs of life, and infectious diseases."

Regarding inheritance, the author states that "there may be certain inherited deviations which may in all likelihood be attributable to transmissible ductless gland properties; and . . . a functional glandular instability may exist in these individuals which makes them more susceptible, under stress, to alterations which border on the pathological. Such periods of stress may occur during the course of the more serious physiological epochs of life, through accidental or operative grandular mutilations, or as a consequence of disease, notably infections."

Trauma seems unquestionably to play a certain rôle. In its relation to intracranial tumor in general it represents about 15 per cent of the author's series of some 300 cases.

Puberty, according to the author, has a very intimate relation to the pituitary body. "The rapid increase in stature which occurs during the adolescent period is in all likelihood due to an hypophyseal hyperplasia. . . . Early sexual development indicates early closure of the epiphyses; delayed puberty suggests delayed epiphyseal union. The same factor may well account for the occasional spontaneous glycosurias characterizing this period of life; and it is not improbable that during this epoch the tolerance for carbohydrates is actually low in all individuals, as is possibly true also in pregnancy, in which state a transient physiological hyperpituitarism is more clearly demonstrable.

"It is conceivable, furthermore, that the acquirement of secondary sexual characteristics . . . may in some way be dependent upon a primary hypophyseal stimulus. . . . The reverse condition — namely, failure to acquire secondary sexual characteristics, stunting of growth, and a high rather than a low tolerance for sugars — due to hypophyseal unsufficiency, is easily produced by partial experimental extirpation in preadolescent animals."

Regarding hibernation he says: "It is suggestive, at all events, that in both the physiological state of hibernation and the pathological condition of hypopituitarism there is a tendency toward unwonted sleep, a subnormal metabolism with diminution of CO_2 output, a definite hypoæsthesia of the body to painful stimuli, and, in the males at least, an hypoplasia of the sexual glands. In the clinical states, moreover, these symptoms can be largely alleviated by glandular administration."

The hypophyseal relationship to pregnancy appears to be somewhat more clear, due especially to studies on functional hypertrophy. "It is not impossible that normal parturition may be incited by the secretion of the hyperplastic gland, which reaches its culmination in the last month of the gravid state and which periodically discharges with the menstrual cycle." Moreover, repeated involutions from the hyperplasia (or functional

hypertrophy) may bring about a physiological inactive condition of the gland. Thus a measure of hypopituitarism may account "for the excessive adiposity, loss of hair, asthenia, subnormal temperature and so on, not uncommonly seen in women after multiple pregnancies. On the other hand, the transitory clinical manifestations of gland overactivity . . . may persist, or even increase, after the termination of pregnancy."

The symptomatology of pituitary body disorders is arranged under four groupings:

Group I. Neighborhood Signs and Symptoms.

1. *Subjective disorders.* (*a*) Headaches: "are usually bitemporal; often severe and persistent when there is considerable glandular hypertrophy. The pituitary headaches are quite different from those incited by a general increase of intracranial tension." (*b*) Photophobia: "is often associated with deep orbital discomfort and sensitiveness of the eyes to pressure."

2. *Deformation of the sella turcica.* "Three types may be distinguished: (*a*) those associated with thickening of the clinoid processes and dorsum ephippii; (*b*) those with thinning from pressure absorption of these parts; and (*c*) those with more or less destruction of outlines. . . . A radiographic study of the subjacent sphenoid is of importance, as well as the mere configuration of the sella itself."

Under certain circumstances, stereoscopic plates are absolutely essential, "and indeed they are desirable in all cases, the head being tilted slightly so that one may look directly in the fossa. It is often necessary to make repeated exposures from different points of view, for it is disconcerting to secure a negative which discloses a well-formed though displaced and thinned-out sella when previous ones have seemingly shown complete obliteration of the structure.

"Profile radiographic measurements exceeding 15 mm. anteroposteriorly and 10 mm. in depth may be looked upon as indicating an enlargement. It is our impression that single plate exposure should be made by focusing directly over the hypophysis perpendicular to the sagittal plane, whereas stereoscopic exposure should be made from the side and above, so that one may look down into the fossa.

"It is presumable . . . that serial radiograms may under some circumstances be of value in determining whether or not the hypertrophic condition of the gland is advancing."

3. *Visual disturbances.* "The degree of implication of chiasm nerves or tracks bears no direct relation to the size of the sella."

Checked disc only appears in the late stages. The ophthalmoscope usually shows a primary atrophy. With occlusion later of the foramina of Mouro, however, "a choked disc may become superimposed on the atrophic nerve head."

"It is safe to say that the amblyopia associated with a primary atrophy more often represents a physiological block to light impulses than an actual destruction of the nerves, as the post-operative restoration of vision in previously blind eyes in a number of individuals of the series exemplifies."

"Exophthalmos, to some degree, is shown by almost all the patients with tumor — probably a purely local stasis phenomenon.

4. *Perimetric deviations.* In all but two of the twenty-three patients showing pronounced neighborhood symptoms some distortion of the visual field has been demonstrable.

"The supposedly typical bitemporal hemianopsia, with a vertical meridian which bisects the macula is conspicuously rare in this series. . . . Homonymous defects, or tendencies in this direction are at least half as frequent as bitemporal ones."

Moreover, "unilateral amblyopia may occur with but little, if any, perimetric deviation in the field of the opposite eye; . . . and what is perhaps of greater clinical significance, mere tendencies toward temporal defects must be carefully looked for, particularly only defects limited to the color peripheries, if one wishes the perimeter to serve in making a diagnosis before the time when crude finger-tests suffice to demonstrate a complete hemianopsia.

"In all cases, the color fields are involved first; the form fields are involved later. . . . Rarely are the two eyes affected in equal degree; . . . after operation, restorations occur in reverse order. . . .

"Oculomotor implication of some degree, in many patients, was suggested by the history of periods of double vision or was obvious from palsies apparent at the time of admission."

Nystagmia of slight degree has been observed frequently, even when the ocular movements have been unaffected by palsies.

Accompanying extrasellar lesions there may be other evidence of local implications of cerebral nerves, such as anosmia and trigeminal neuralgia. Similarly there may be uncinate seizures or evidences of frontal lobe involvement.

5. *Nasopharyngeal signs.* "A history of troublesome epistasis is very common. It is not unusual for patients to mention an occasional unexpected and intermittent discharge of mucus into the pharynx. In view of the unquestionably close relation of many states of dyspituitarism — particularly those of primary glandular insufficiency — to lymph hyperplasia (status thymolymphaticus) it is quite probable that there may be a tendency toward adenoid formation in the pharynx.

Group II. The General Pressure Symptoms.

Diagnostic errors emphasize the necessity for care here. "Doubtless every patient with pituitary manifestations, in whom there is any suggestion of pressure symptoms, should be scrutinized with the possibility in mind either of an intracranial extension of an hypophyseal struma or of a coincident growth elsewhere. A neuroretinal œdema — ordinarily the most reliable sign of tension — may be wanting, even with extreme tension from a large tumor and

secondary hydrops of the lateral ventricles. This is occasioned by the envelopment of the optic nerves by the tumor so "as to prevent crowding down of cerebrospinal fluid under tension into Schwalbe's sheath." Vomiting "is particularly unusual in these patients. . . . Headache, therefore, may be the only symptom" (at first evident). Among the "tell-tale signs of pressure" which are of value are "the extracranial evidences of venous stasis shown by the fullness and tortuosity of the palpebral venules, as well as of the larger veins of the scalp. The X-ray . . . may show not only the signs of pressure enlargement of the diploetic channels but also points of pressure atrophy brought about by the small arachnoidal herniations of Wolbach.

Group III. The Glandular Manifestations.

1. *Skeletal.* "One point, at least, is now generally accepted, namely, that the skeletal changes in gigantism and acromegaly are expressions of the same morbid influence." On the view of transient hyperpituitarism, Prof. Cushing makes the following explanation:

"The disease . . . is the expression of a functional instability of the pars anterior, doubtless brought about by some underlying biochemical disturbance which leads to the elaboration of a perverted or exaggerated secretion containing a hormone that accelerates skeletal growth (of the long bones if epiphyseal union is incomplete; of the acrol parts if epiphyseal ossification has taken place). Since the functional disturbance is probably a fluctuating one, with periods of increase and remission, as is known to be true of hyperthyroidism, epiphyseal ossification may occur during a period of quiescence in the disorder. A subsequent recrudescence, with resumption of the perverted functional activity, will then serve to superimpose acromegalic manifestations on primary gigantism. . . . In overgrown individuals exhibiting no acromegalic tendencies it is interesting to note that traces of the epiphyseal lives are still demonstrable."

The sellar configuration, the radial epiphyses, and the phalanges of the hand are the three most useful and convenient sources of information, at least where adult types of overgrowth are concerned. The latter "is a particularly dependable sign." There may be also mandibular or maxillary prognathism, spacing of the teeth, rounding of the shoulders, sternoclavicular enlargement, or change in the cranial configuration. Skeletal undergrowth may result from hypophyseal glandular insufficiency when the process takes its start before full stature is attained. "This is true, likewise, of deficiency in other members of the ductless gland series — in the thyroid, the adrenal, and the thyma, as is known both from clinical and experimental observations." However, "it is unwise to lay too great stress on anything other than the possibility of an indirect hypophyseal participation in the dwarfed stature characterizing the many types of infantilism.

"When the hypopituitarism dates from the adolescent period, there occur changes other than the mere failure of full development of the long bones. Apart from the feminine disposition of the associated adiposis, the males actually possess a feminine type of skeleton, with broad pelvis and a certain degree of genu valgum. Notable, too, is the smallness and delicacy often shown by the extremities; and the tapering type of hand contrasts markedly with the "*type en longue*" of gigantism and the "*type en large*" of acromegaly, which Marie has differentiated.

2. *Cutaneous and subcutaneous.* The coarse features of acromegaly "include not only an increase in the size of the hair follicles, but also an hypertrophy of the papillæ, with enlargement and activation of the secretory glands, so that the skin becomes greasy and moist. There is also an augmentation in the connective tissue of the subcutis, which may even extend to and involve the muscles, giving the tissues a dense, boggy feel, with an apparent increase in depth of the furrows of face and hands. A large part of the thickening and bogginess must be due to an accompanying œdema. The tendency to hypertrichosis is marked in many of these individuals during the period of activity of the process.

"The cutaneous features of primary hypopituitarism are quite the reverse. Here the skin, except in the older patients, is smooth, transparent and notably free from moisture. Though the hair of the scalp may be abundant, it is otherwise on the body, for the axillary and pubic hair may be almost wanting, or, in the males, may assume a feminine type of distribution. The nails are apt to be small, thin and do not show the crescents at their bases. When hypopituitarism originates in adult life there is a tendency for the hair, even of the head, to become thinned."

"Pigmentation is a conspicuous feature of many of the adult states" (hypopituitarism).

Adiposity. "The acquirement of an excessive subcutaneous deposit of fat is one of the notable clinical features of many of these cases." Of course, deficiencies on the part of other of the ductless glands than the hypophysis may cause an increased deposition of fat.

The symptom-complex of adiposity, high sugar tolerance, subnormal temperature, slowed pulse, asthenia, and drowsiness very probably is attributable to a secretory defect of the posterior lobe. The reverse condition — emaciation, spontaneous glycosuria with hyperglycœmia, and a slightly elevated temperature — follows posterior lobe administration.

It is important to bear in mind that "an internal hydrocephalus is capable of producing an insufficiency of posterior lobe secretion, and at the same time may apparently either stimulate or inhibit anterior lobe activity." Moreover, "a tumor is not essential to the clinical condition" of hypopituitarism, "for a primary posterior lobe hypoplasia may elicit the same constitutional manifestations. Hence, coupled

with obesity we may have the combination of overgrowth with sexual precocity or the reverse, or of undergrowth with sexual precocity or the reverse."

Carbohydrate tolerance. The factor of sugar tolerance, especially from a diagnostic standpoint, is considered to be quite important. The tolerance appears to increase directly with the degree of hypopituitarism. "In many of the outspoken cases of primary, rather than secondary, hypopituitarism, the high assimilation limit has been even more marked, one of these patients being able to retain 450 grams of levulose with no resultant mellituria; and in this case the existence of a persistent hypoglycœmia was demonstrated. We have come to regard the sugar tolerance as a means of posterior lobe activity, and it is possible that the degree of hypopituitarism may be determined by an estimation of the sugar content of the blood rather than by the more tedious production of alimentary glycosuria through feeding tests."

Polyuria and polydipsia. In certain cases, in all probability, "the polyuria is due to the excessive elaboration of the hormone contained in the pars nervosa secretion. Confessedly, however, there is some difficulty in satisfactorily explaining the diuresis which may accompany hypopituitarism, for one would suppose that individuals in stages of glandular insufficiency would show, more consistently than they do, a lowered urinary output."

Variations in body temperature. "Our interpretation has been that the subnormal temperature was merely one of the many evidences of the lowered metabolic activity characterizing hypopituitarism. We have hoped that the thermic response to anterior lobe injection would be available as a measure of pars anterior activity. Further study is necessary before these reactions can be given any wide clinical application."

Blood pressure changes. A low arterial tension — often below 100 mm. of mercury in fairly vigorous individuals, and as low as 70 mm. from time to time, when they begin to complain of asthenia — and a slowed pulse are common features of the states of hypopituitarism.

Other symptoms of insufficient hypophyseal activity which may be present are: drowsiness and torpidity, insensitivity, constipation, and psychic disturbances. Psychic disturbances etiologically fall into two categories; (1) Those "due to the involvement of temporal and frontal lobes by the pressure distortion of a growth." These then are neighborhood signs. "Notable always is the utter lack of appreciation of, and complete indifference to, the existing condition." (2) Those "due solely to the effect, on the one hand, of an excess or perversion of glandular secretion, or, on the other, of an insufficiency of secretion." (*a*) With hyperpituitarism: "Here certain temperamental changes are often apparent, with wakefulness, lack of concentration, indecisiveness, irritability, distrust, and so on — psychasthenic states which are not unlike those with which we are familiar in moderate grades of dysthyroidism." (*b*) With hypopituitarism: All gradations of disturbance are to be found, "from mild psychoses to extreme mental derangements with epilepsy.

Group IV. Symptoms Referable to Other of the Ductless Glands

"As De Lille has pointed out, we may find a suggestion of *insuffisance pluriglandulaire* combined either with hyperpituitarism or with hypopituitarism." Secondary to hypophyseal lesions three histological types of testis may be distinguished: (*a*) The interstitial cells are unusually abundant — fully acquired secondary characteristics. The tubules are preadolescent in type and contain no spermatozoa. (*b*) There is a paucity of interstitial cells — secondary characters of sex are never fully acquired. There is a feminine type of adiposity, hirsuties, and so on. The testes, however, have fully developed tubular epithelium with spermatozoa — active sexual life. (*c*) There is a marked lack of development of the tubules — impotence. This is accompanied by a complete absence of interstitial cells — absence of secondary sex characteristics.

In both males and females, "the reproductive function may not be impaired, even though full secondary sexual characteristics have not been acquired." It is likely that "in females as well as in males the glandular element which is responsible for the physical changes of puberty differs from that which is concerned with ovulation and reproduction, and may possibly be a function of specific interstitial cells. . . . The relation of hypophyseal disorders to the physiological activities of the ovary, other than those concerned with the acquirement of adolescent characteristics, is unquestionably a very close one, and amenorrhœa is an early symptom whether the disorder is on the side of overfunction or of underfunction."

It is the author's impression "that the thyroid gland is most apt to show enlargement in individuals with clinical evidences of past hyperpituitarism, suggesting that the same underlying biochemical factor causes an hyperplasia of both structures, rather than that the thyroid assumes a compensatory and vicarious rôle for the hypophysis."

"Symptoms are often present which are very suggestive of functional insufficiency of the suprarenal bodies — pigmentation of the skin, asthenia, low blood pressure, and hypoglycæmia. These symptoms have been more pronounced in the individuals with dyspituitarism in whom evidences of former hypophyseal hyperplasia were evident."

The status ghymolymphaticus is probably "a secondary consequence of the pituitary lesion, rather than merely a coincidental disorder.

It seems likely "that changes in the pancreatic islets are less essential to disturbances of sugar metabolism than we had supposed."

"A number of successful canine pineal extirpations . . . led to no recognizable post-operative symptoms." In the human cases examined, no hyperplasia nor microscopic deviations from the normal were recognized.

These are divisible, on developmental and histological grounds, into (*a*) "the homoplastic growths of the pituitary body proper . . . the hypertrophies or so-called strumas of the gland itself." Here "we must distinguish the physiological from the pathological hypertrophies. In their histological configuration these adenomatous strumas show considerable variation, their chief point of resemblance lying in the neutrophilic character of the cellular elements (chromophobe struma) rather than in the anatomical disposition. (*b*) The extrapituitary or heteroplastic tumors which arise usually from some neighboring anlage. These are, more strictly speaking, true neoplasms which implicate the hypophysis, if at all, merely through the agency of compression.

"No case of acromegaly has been associated with a heteroplastic tumor except one in which a glandular hyperplasia and cerebellar cyst were coexistent; furthermore, in all cases of acromegaly in which a large homoplastic chromophobe struma was demonstrated, evidence of glandular insufficiency had begun to be apparent.

"On the other hand, manifestations of primary hypopituitarism always accompanied the heteroplastic tumors which served to compress the gland, and were often an accompaniment, also, of the large chromophobe strumas. These enlargements may occur, therefore, in the glands that have not undergone the primary hyperplastic transformation to which acromegaly is commonly accredited."

Therapy. "From a therapeutic standpoint we are confronted by a variety of problems, some of which call for mere symptomatic medicinal measures, some for operative relief, and some for the administration of glandular extracts to make up for a deficient secretion.

"Surgical measures resolve themselves into (1) a sellar decompression (*a*) for persistent hypophyseal headaches, (*b*) for the purpose of encouraging the extension of a glandular struma in the direction of the sphenoidal cells rather than into the cranial chamber; (2) the partial removal of an hyperplastic gland in the active stage of hyperpituitarism; (3) the partial removal of a tumor or struma for the relief of neighborhood symptoms; (4) a subtemporal decompression for the palliation of pressure symptoms when an intracranial extension has occurred; (3) a subtemporal or sellar decompression, or both, to permit of the more favorable and direct application of radiotherapy; (6) the exposure of the brain or of some other organ in case of marked hypopituitarism, for the purpose of implanting a viable gland.

"The operation of choice for the majority of cases, as being less mutilating and yet one which furnishes as wide an avenue of approach as any, is a transphenoidal operation through a median inferior nasal opening, reached by sublabial incision and a submucous resection of the vomer, the turbinates being flattened but not removed. The essential precautions are: (1) to be correctly oriented in regard to the sphenoidal cells, so as to avoid a misdirected approach to the posterior ethmoidal region, (2) to be sure of the local condition by a careful stereoscopic study of X-ray negatives, and to operate under their guidance; (3) to have perfect anæsthesia; (4) to have the courage to withdraw for a second session in case there is any uncertainty as to the character of the tissue exposed after incising the pituitary capsule."

"The operation of second choice — a subtemporal procedure — may be necessary in the case of a superimposed lesion with a small sella, or when with an enlarged sella a flattened gland is interposed."

A tabulation of operative experiences with 43 cases is incorporated here.

Among other therapeutic measures is glandular administration. "Animals suffering from a known deficit of glandular secretion could be benefited by injections of extracts, by glandular feeding, or by implantations of hypophyses from other sources." This applies to human patients also, though "the therapeutic administration of extracts by mouth is fraught with many disappointments." Hypodermic and intravenous administration of the extracts is definitely more effective, although the whole question of gland transplantations is still very unsettled. "Doubtless much may be expected from these measures in the future."

With radiotherapy, the results have been very encouraging thus far. The failures to substantiate the earlier claims for the rays in exophthalmic goitre, however, prepare one for a possible like disappointment here. E. G. Gray.

SURGERY OF THE CHEST

CHEST WALL AND BREAST

McKenty: On Paget's Disease of the Breast. *Surg., Gynec. & Obst.*, 1912, xv, 457.

By Surg., Gynec. & Obst.

Two cases are described in detail by the author, as they both came under his personal observation. Reference is then made to Sir James Paget's definition of the disease as it first appeared in 1874. According to Paget, this disease appears in women between the ages of 40 and 60, beginning as an eruption in or around the nipple. Retraction of the nipple then follows, and the surrounding skin becomes a florid red color and exudes an abundant, clear yellow fluid. Subsequently a carcinoma develops deep in the breast, with an intervening area of clean, healthy tissue.

The histology of the disease is as follows:

a. Proliferation of the stratum malpighii. This was regarded as characteristic of the disease by Butlin in 1876, in association with infiltration of the corium. According to several authors mentioned, this process of proliferation of the deep layers of the skin may go on to such an extent that the appearance will be that of an ordinary epithelioma.

b. Infiltration of the corium. This infiltration is due to a plasma cell infiltration, and is regarded by Unna as a defensive process against the invasion of epithelial cells into the surrounding tissues.

c. Plugging of the milk ducts. This phenomenon is due either to a proliferation of the lining epithelium of the ducts or to a spreading of the diseased epidermis.

d. Presence of coccidia. These were originally considered as a cause of the disease, but this has been denied by recent observers.

The chief points in the diagnosis are as follows: The patient is usually a parous woman over 40 years of age. The first thing noticed is an eczema in or around the nipple which resists treatment. Retraction of the nipple follows and the nipple becomes surrounded by a bright red area, which may be dry and scaly but usually exudes an abundant serum. Ultimately a deep cancer develops.

In the differential diagnosis the main things to consider are eczemas complicating pregnancy or lactation, and scabies. In these diseases the course is more acute, the trouble is usually bilateral, and the patient is usually under 40.

There are five theories as to the etiology of the disease: (1) that it is not related to cancer at all; (2) that it is caused by coccidia; (3) that it is due to irritation from without; (4) that it arises from irritation of abnormal secretion by the sebaceous glands; (5) that it is a melanoblastoma. The conclusions arrived at by the author are that the disease is due to chronic irritation, and that the source of the irritant is found in the breast itself, namely, an alteration of secretion in the involuting acini.

The only treatment which proves satisfactory is early and complete removal of the breast. Local treatment has been abandoned as worthless. X-rays have a few cures to their credit. J. H. Skiles.

Zybell: Clinical Picture and Treatment of Empyema in Infants (Zur Klinik und Therapie des Pleuraempyoms bei Sanghirgen). *Monatschr. f. Kinderh.*, 1912, xi. By Surg., Gynec. & Obst.

This consists in an exhaustive treatise on the clinical findings and treatment of empyema in infants, a condition which has not received its proper attention heretofore. Only the more salient features can be brought out in this abstract. Zybell calls attention to the fact that empyema is very frequently followed by pus infections of other serous membranes. For the diagnosis a pleural puncture is of the greatest value. This should be done, however, not with a small needle, but with one with a large barrel, so that the thick creamy pus which is so frequently present can be obtained. Not every case of effusion into the pleural cavity in infants is a case of empyema. Many cases which give the signs of fluid in the pleural cavity in these infants are secondary to pneumonias, and frequently the fluid is of a serous nature. One should be careful not to be too hasty in making diagnosis, as abscess of lung is a very frequent occurrence, very difficult to differentiate.

The paper consists in the report of 22 cases, in 15 of which complications existed: in 7 cases an abscess, pneumonia twice, a purulent or fibrinous pericarditis with a dry perisplenitis, 2 cases of metastatic purulent arthritis, 3 cases of purulent infection of the urinary tract, once an infection of the navel region, 4 cases of otitis media, and 5 cases of pyodermia and deep-lying abscesses of the skin.

The pus of 18 or 20 cases was examined with positive results. Of these, 14 showed an encapsulated diplococcus, evidently the pneumococcus, 3 the streptococcus, and one a mixed infection of staphylococcus and streptococcus. One empyema in this report was found at autopsy. In the others, rib resection was twice resorted to, five times they were drained without rib resection, one time pleural puncture with washing of the cavity, and 13 times simple pleural puncture. The simple pleural puncture was carried out in most cases quite frequently, in one case as often as 21 times. This case, by the way, was followed by recovery. Both cases with rib resection died. Of the 5 cases in which puncture with drainage was made, one alone lived. The case which was treated by puncture and washing of the cavity died. Of the 13 cases which were treated by simple puncture, 2 died within two hours after the puncture, which was done for diagnostic purposes. Of the other 11, 6 survived. Zybell, therefore, inclines very strongly to the treatment of empyemas in infants by the use of simple puncture. He feels that the dangers from other methods of treatment lie in the shock from the operation, the entrance of air into the pleural cavity, which has a much more serious effect in infants than in adults, because of the fact that the accessory muscles of respiration cannot be used in these children, since the chest has proportionately a much greater antero-posterior diameter than in the adult, the sternum being held high. Respiration, therefore, is principally diaphragmatic. This necessitates an increased rapidity of respiration rather than a deepened respiration, which could be accomplished with the aid of the thoracic type of breathing. C. G. Grulee.

Jacob: An Operation on the Posterior Mediastinum by the Wide Transpleural Route; Cure (Un cas d'intervention sur le médiastin postérieur par la voie transpleurale large; guérison). *Bull. et mém. Soc. de Chir. de Par.*, 1912, xxxviii, 1204. By Journal de Chirurgie.

Operations within the posterior mediastinum by the transpleural route are not very numerous, and the choice of this route of access as such is strongly debated, and even condemned by a great many

surgeons, for the reason that a "wide open" pneumothorax is a very serious matter. So it is very interesting to note the good result which Jacob has obtained in this method of surgery.

On June 23, 1911, at Maroc, a soldier was seriously wounded by a rifle-shot. The ball entered at the level of the posterior border of the right axilla and did not leave the body. After grave unexpected symptoms, particularly those of a pulmonary lesion, which necessitated confinement for two months in the hospitals of Maroc, the patient was sent home to France, convalescent. He finally came back to Maroc, took part in the new operations of the war and returned to France in 1911, emaciated, tired, and complaining of pains in the thorax, in the kidneys, and in the lower limbs, also declaring that he was incapable of doing continuous work. He attributed all these troubles to the presence of the ball, which it had never been possible to locate. On January 10, 1912, he entered the hospital Val-de-Grâce and demanded that we look for the ball and extricate it.

The radiograph showed it in the middle of the posterior mediastinum, in the region occupied by the thoracic aorta, the œsophagus, the greater azygos, and the posterior surface of the heart. Its position, a little to the left of the median line, suggested that it was lodged between the aorta and the œsophagus.

To gain access, Jacob chose the left transpleural route, which he reached by a long but narrow costal trap-door flap, with a superior hinge that included the ninth and tenth ribs. There was no pleuropulmonary adhesion, the lung withdrawing completely upon its hilum as soon as the pleural cavity was opened. No grave accident of any kind ensued. There was only a slight apnœa, which passed away when traction was exercised upon the lung by means of a forceps. To discover the projectile it was necessary, after having pulled the lung upward and the pericardium and the heart forward, to make an incision in the mediastinal pleura, about 8 cm. in length, directly in front of where it comes in contact with the aorta. Then, after having moved the heart and the œsophagus forward, Jacob introduced his index finger and the middle finger into the mediastinum. It was only then that he felt the ball with the tip of his finger, a little to the right of the right branch of the aorta, toward the vertebral column. He was successful in extracting it. There was no hæmorrhage and the wound was closed without drainage.

The after effects of the operation were simple. There was nothing more serious than a slight serohæmatic extravasation, which necessitated opening the wound on the tenth day and draining the pleura for a few days. To-day the patient declares himself relieved of all his complaints.

In conclusion Jacob insists, first of all, upon the readiness with which he was able to explore the posterior mediastinum, despite a very small costal trap-door flap (comprising only two ribs). In the second place he insists that a pneumothorax may be quite benign, even though the incision is wide open for a half-hour. J. DUMONT.

Weiss: Complications Liable in Treatment with Artificial Pneumothorax. *Beitr. z. Klin. d. Tuberk.*, Würzburg, 1912, xxiv, Sept.

By Surg., Gynec. & Obst.

Weiss endorses the amplification of the indications for this procedure to cases of medium severity. Brauer's method of incision was used. Simple puncture was employed only when an exudate was present. Before puncturing the costal pleura a little cocaine is applied to the region to avoid shock. To avoid danger of lung injury in the presence of a thickened pleura, Weiss advises to pick up the pleura with forceps before perforation. Injury to the lung can occur when very firm adhesions exist. Veller reports a fistula of the lung following injury. The danger of sputum aspiration into the sound lung is not great. Schmidt and Torleurui mention it. Weiss never exceeds 1 litre of gas for injection. Recently smaller quantities have been used when alarming phenomena which could be attributed to an excessive quantity of gas were present in a patient. Withdrawal of 300 cm. brought marked improvement. The first insufflation serves the purpose of separating the pleural layers and of guarding against lung injury during subsequent insufflations. Subsequent insufflations will make the pneumothorax complete. X-ray examination is made before and after each secondary insufflation. The lung should not be forcibly compressed by the gas. The amount of gas used has to be regulated for the individual. Complications are apt to arise where adhesions exist. One patient showed alarming symptoms after Weiss had compressed the lower and middle lobe of the right lung. The upper lobe became detailed, the apex was still adherent. Greater pressure was employed to loosen the apex (3 to 8 mm. H.g.). Two days later violent pains occurred over upper sternum; pain on swallowing, cyanosis, frequent pulse and respiration were noted. It was supposed that the apex had been detached; immediate X-ray confirmed this, and likewise an overstretching of the mediastinum. The removal of 200 ccm. of nitrogen was followed by a disappearance of all symptoms. The increased pressure began to exert its influence upon the mediastinum only after detachment of the apex. Injury of a blood-vessel by the needle is indicated by a gradual progressive rise of the manometer. The needle is best withdrawn. Weiss observed a case of gasembolism, one of the most serious accidents. Brauer reports 4 cases.

Emphysema occurs in many patients; usually it can be avoided with proper technique. A small amount of N will collect under skin when patient coughs during insufflation. Deep sutures are not always successful, especially in debilitated patients with fluorid musculature. A rigid costal pleura which does not contract at once after insufflation may lead to emphysema formation. Exudation

occurs in about 50 per cent of the cases, a great majority of which is tuberculous.

The course is exceedingly variable. Many of the most incipient cases show no symptoms and clear up in a few weeks. Some cases run the course of a febrile pleuritis. Abdominal complaints seemed to precede the onset of exudation. The character of the exudate was always serous, or sanguinoserous in the beginning; later, after the fever had run its course, they became thicker. This caused no change in symptoms or virulence. Weiss did not observe any cases of tuberculous empyema. All cases without mechanical symptoms were treated expectantly. In case aspiration is necessary, nitrogen is substituted for the fluid removed. Hæmorrhages are usually the result of lung injury; occasionally they occur spontaneously in partially decompressed lungs.

Weiss reports a case in a patient with a pneumothorax which had occurred spontaneously. The pneumothorax was maintained artificially by insufflation. X-ray showed the lung much contracted beside the spinal column. During the night patient developed a severe hæmorrhage, and while trying to breathe deeply he aspirated much blood into the sound lung and died of asphyxia. The lung contained many small cavities which had not been compressed. Nevertheless Weiss sees in severe hæmorrhages a direct indication for insufflation. He mentions 2 cases in which uncontrollable hæmorrhages were checked by insufflation. Phthisis of a pneumonic character is not suited to pneumothorax treatment (Forlanini). Weiss reports 5 cases which were treated by insufflation; in 4 the disease spread to the other lung and led to a fatal issue. Initial results were good in 3 of these patients. He does not endorse Forlanini's statement absolutely, as the chief object of pneumothorax therapy is to cure advanced cases. A case of double pneumothorax following right-sided insufflation, and probably due to a giving way of a weak spot in the anterior mediastinum, is cited as unique. The left-sided pneumothorax was diagnosed by X-ray. Withdrawal of nitrogen from right pleural cavity; recovery. The heart bears the transposition occasioned by the pneumothorax well as a rule. Alarming symptoms occurred in one case where bands might have occasioned a circulatory obstruction. Besides lateral displacement the heart is rotated and pushed away from the anterior chest wall. Occasionally murmurs are heard after the operation which were not present before. In one of his patients Weiss heard a persistent diastolic murmur over the aorta. Slight slowing of the pulse has been observed at times after the operation. Dyspeptic symptoms are frequent and attributed to pressure of the diaphragm upon the liver and stomach. Intestinal involvement is a contraindication to the operation. In cases of tuberculosis complicating diabetes, the state of the other lung has to be ascertained with the greatest of care before attempting insufflation. In a case of tuberculosis with hæmorrhagic nephritis, insufflation was followed by good results. The nephritis disappeared within a few weeks and was probably due to toxins. Weiss points to the fact that the pneumothorax leads to contracting processes, not only in the diseased but also in the sound portions of the affected lung, and thus to incomplete re-expansion. Hence the indications for its use should be more precisely defined.

E. C. Riebel.

TRACHEA AND LUNGS

Ducuing and Boularen: Should We Suture Wounds of the Laryngotracheal Duct? (Faut-il suturer les plaies du conduit laryngo-trachéal?) *Arch. gén. de Chir.*, 1912, vi, 1059.

By Journal de Chirurgie.

Ducuing and Boularen report a case of a man 54 years of age who, in an attempt at suicide with a pocket knife, had wounded himself in the laryngotracheal duct. The cutaneous gash was sutured 1 cm. below the hyoid bone. It was a narrow transverse cut, 3 cm. wide. Between the lips of the wound protruded a clot of blood. Air escaped only when the patient made an effort or had a fit of coughing. The patient was pale and agitated; his pulse was weak and rapid (110 beats to the minute).

Immediate intervention. After disinfection of the region with tincture of iodine the wound was enlarged. When the clot of blood which obstructed the gap in the laryngotracheal duct was removed, a shower of blood immediately splashed over the operators. The inferior laryngeal artery was tamponed and clamped with forceps.

It was found that the wound pierced the whole of the thyroid membrane and the left lateral wall of the pharynx, as far as the spinal column. The epiglottis was completely cut, near the thyroepiglottic ligament. The omosternal and thyrohyoid muscles were likewise cut on both sides. The large vessels of the neck were intact.

A whip-stitch suture of silk was taken in the lateral wall of the pharynx. Then the hyoid bone and the thyroid cartilage were brought together by means of another whip-stitch suture; the epiglottis was repaired and the whip-stitch continued as far as the termination of the right cornu of the hyoid bone. A tent was placed and the thyrosternal and omohyoid muscles fastened upon this first plane by means of a catgut suture. Another tent was then placed and the skin sutured with horsehair.

The results of the operation were excellent. The patient was fed by a sound for four days. The tents were removed two days after the operation; on the eighth day the wound had nearly healed. But pneumonia developed within six days.

Fourteen days after the operation, following a fit of coughing, the patient found that his dressing was wet with blood. The wound was opened and a small artery which was bleeding deep was clamped with forceps. Healing occurred after a slight superficial suppuration.

This case shows that, contrary to the opinion of

certain authors, suture of the laryngotracheal duct yields very good results. It also avoids the production of fistulæ and subsequent stenoses.

J. Dumont.

Rauzier, Roger, and Baumel: Hydatid Cyst of the Apex of the Lung (Kyste hydatique du sommet du poumon). *Montpellier Méd.*, 1912, xxxv, Oct.

By Journal de Chirurgie.

The authors report the case of a woman 56 years of age, who entered the hospital with pains in the left shoulder and the left breast, which had begun about a month and a half before. Since then the patient coughed and expectorated a mucopurulent sputum; on four or five occasions during the first weeks of the disease the sputum expectorated had also been distinctly bloody. Exploration of the pulmonary apices revealed dullness on the left and completely obscured respiration, though no abnormal murmurs were observed. This suggested that it might be an acutely developed bacillary infiltration of the apex of the lung. But the absence of Koch's bacillus from the sputum required that this diagnosis be rejected in favor of encysted pleurisy of the pulmonary apex. Therefore an exploratory puncture was decided upon.

This puncture enabled the authors to withdraw some cubic centimeters of a clear liquid which contained a number of degenerated leucocytes. The puncture was followed by grave symptoms — a very decided dyspnœa, crepitations of pulmonary œdema, sudden failure of the heart with a tendency to collapse; the patient also vomited about 400 cubic centimeters.

This whole picture recalled the phenomena of intoxication which follow puncture of hydatid cysts and have been attributed either to the toxicity of the hydatic liquid or to phenomena of anaphylaxis (Chauffard).

The clinical evidence then inclined toward diagnosis of hydatic cyst rather than toward that of pleurisy. The absence of the membranes of the hydatid or of the echinococcus hooklets, both from the vomited liquid and from that of the puncture did not divert diagnosis from hydatid cyst. The presence of cellular elements in the liquid derived from the puncture was interpreted, not as a sign of pleural inflammation but as a sign of the passage of the cyst into the state of suppuration. Fortunately the evidence furnished by examination of the blood was more conclusive.

In the first place *eosinophilia* was very much in evidence (8 per cent), and afterwards Weinberg's sero reaction was decidedly positive. We may add that radioscopy and radiography, which could not be carried out until a few days before the intervention, showed very clearly an opacity of the whole left lung (a secondary invasion of the pleura, perhaps initiated by the exploratory puncture); it was also shown that in the region adjoining the apex of the lung there was a zone somewhat more clear and the size of a mandarin orange.

After the puncture the patient expectorated, at first muco-pus and then a great deal of pus, the pus being very fœtid. Fever persisted without interruption, but showed a number of wide oscillations. Dyspnœa prevailed, the heart was weak, and cachexia progressive. Professor Fargue decided to intervene.

General anæsthesia was obtained with kelene after an injection of pantopon. A long incision was made, which embraced the left breast in its concavity. As soon as the bistoury reached the deeper levels, and before the pleura had been opened, a copious flood of thick, greenish, horribly fœtid pus broke forth. After a resection of three ribs, to an extent of 6 to 8 cm., the orifice of communication with the pleura was enlarged; another considerable quantity of pus flowed out; then appeared a number of perfectly characteristic hydatid vesicles. The hand could easily extract a large hydatid pocket, which measured 8 cm. in length and had a thick wall. There were also a large number of daughter vesicles, which varied in size from that of a kidney bean to the size of a large nut. These daughter vesicles appeared withered and of a slightly greenish tint, the color being due to the pus in which they were bathed. The cavity occupied by the cyst extended from the apex of the lung to the pericardium. The latter itself had been altered by the action of the pus; an orifice through which a finger could be introduced enabled one to feel the heart-sounds very distinctly. The patient succumbed an hour after the intervention. J. Dumont.

HEART AND VASCULAR SYSTEM

Von Walzel: Pericardotomy. *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1912, xxv, 264.

By Surg., Gynec. & Obst.

The author reports 3 cases of pericardotomy performed by von Eiselsberg and mentions the statistics of Reichard, of 32 cases, mostly of simple incisions in the fourth or fifth intercostal space. The collection of Venus, 1908, contains 87 cases. In 36 of these cases, rib or cartilage resections were performed. Von Walzel considers as indications for interference, symptoms of cardiac and pulmonary compression and marked increase in exudations. He mentions Curschmann's ideas as authoritative. Curschmann maintained that in exudative pericarditis, the heart is in contact with the anterior chest wall and pointed to the danger of its injury during paracentesis. There is danger of wounding a large coronary vessel (A. Fränkel). Valvular disease and secondary hypertrophy of the left ventricle increase the danger of injury to the heart. W. Alexander suggests inflation of the pericardium with air to prevent concretio cordis. Injury of the pleura is hard to avoid. Lundmaras' investigations show that the portion of pericardium which is not covered by pleura is very small and variable. Von Walzel cites as an advantage of resection the possibility of complete evacua-

tion. Remaining amounts of fluid may favor the formation of adhesions. In all cases, von Walzel favors resection rather than paracentesis or simple incision, especially in all purulent serofibrinous accumulations.

Case 1. Pericarditis followed a stab wound, which healed without treatment. A month later paracentesis was done, and repeated three times. This was followed by a radical operation and recovery. Pus showed bacterium coli.

Case 2. A child of 6 years, almost moribund; operation under local anæsthesia; resection of the cartilage of the fifth rib; drainage with two rubber tubes. Pus showed streptococcus. Recovery.

Case 3. Man, 41 years old. Local anæsthesia. Incision 7 cm. long, parallel to fifth rib to sternum, subsequently positive pressure and ether. On opening the pericardium a large amount of serous fluid gushed out. Sterile on culture. Recovery.

The pleura could be avoided in all cases. The fold is usually surrounded by fatty tissue and connected with the transverse muscles of the thorax. All structures can be pulled aside. Fixation of the free edges of the pericardial incision to the muscles is advisable to protect the pleural cavity from infection. Drainage tubes should be changed daily.

E. C. Riebel.

Boothby: Note on Intrathoracic Surgery; Division and Circular Suture of the Thoracic Aorta. *Ann. Surg.*, Phila., 1912, lvi, 402.
By Surg., Gynec. & Obst.

The author uses an intercostal incision from the sternum to the head of the rib posteriorly, cutting the erector spinal muscle on the left side. After carefully freeing the aorta from the surrounding structures, it is delivered, cut between vessel clamps, and reunited by circular suture with No. 200 cotton sterilized in white liquid petrolatum. He urges careful attention to the details of technique for a successful result, such as avoidance of overdistention of the lung in the smaller animals in the intratracheal insufflation, exclusion of skin edges from the wound by silk strips, careful dissection of the aorta to avoid injury of thoracic duct from the opening of the opposite pleural cavity, and, finally, the importance of avoiding too great tension on the stay sutures in the vessel wall. He reports six operations, with four recoveries. V. C. David.

PHARYNX AND ŒSOPHAGUS

Zeit: Congenital Atresia of Œsophagus with Œsophago-Tracheal Fistula. *J. M. Research*, 1912, xxvii, 45. By Surg., Gynec. & Obst.

The author advances a new hypothesis as to the etiology of this condition, based upon a case which, unlike most cases of imperforation of the œsophagus with œsophago-tracheal fistula found in the literature, showed no other associated malformations.

According to this hypothesis, both the atresia and the fistula are due to one factor, faulty development — a faulty embryonic anlage of the lower limbs of the lateral ridges which in embryos of three weeks begin to separate the trachea from the œsophagus, starting from the dorsal instead of the ventral side of the foregut, the œsophagus becoming closed above the bifurcation of the trachea, leaving a large opening from the lower end of the ventral or tracheal tube into the lower portion of the œsophagus. This, later on, by elongation, forms a narrow slit, establishing a permanent communication between the trachea above its bifurcation and the lower portion of the œsophagus, the lower limbs of the lateral ridges forming the atresia of the upper portion of the œsophagus, which then becomes a blind pouch.

The hypothesis conforms to the embryology of the parts, excludes inflammatory processes, and determines the causal element to account by one factor for the frequency and the great uniformity of this combination of atresia and fistula in so many cases.

Guisez: Diagnosis and Treatment of Cicatricial Stricture of the Œsophagus (Diagnose et traitement des rétrécissements cicatricielle de l'esophage). 25th Cong. d. l'Ass. fran. de Chir., 1912.
By Journal de Chirurgie.

This pathological condition, due to a permanent alteration of the œsophageal tube, is characterized by the cicatricial degeneration of its wall, giving birth to various disturbances of gradual evolution and leading to the complete obliteration of the lumen of the organ. After cancer, it is the most frequent affection of the œsophagus.

Diagnosis. Cases of traumatic cicatricial lesions due to caustics, hot fluids, wounds, or foreign bodies, are easy to diagnose. There are cases in which the history is not of much assistance. The patient conceals important facts (suicidal attempts, medico-legal features). In some cases, the causative factors have passed unnoticed.

Œsophageal stenosis may be of a medical nature: the cicatrices of a round ulcer near the cardia, of ulceration occurring during infectious fever. Here the etiological diagnosis is difficult. Syphilis of the œsophagus is very rare. Gummata do not like the œsophagus. Therefore cicatricial œsophageal lesions of syphilitic origin are of exceptional occurrence. Guisez has observed one case involving the upper surface of the œsophagus and coexisting with cicatricial lesions of the pharynx.

The œsophagoscope has shown the existence of a group of cicatricial stenoses of inflammatory origin located either at the mouth of the œsophagus or at the cardia. In these cases one often hesitates to make a diagnosis, thinking the condition may be due to spasm, to compression from without, or to cancer, if the patient be aged. They are almost all of spasmodic origin, the spasm causing stenosis and, secondarily, œsophagitis. Chronic inflammation causes fibroid cicatricial lesions in the wall, and these, like all other traumatic stenoses, lead sooner or later to complete stenosis.

The clinical signs, progressive dysphagia, vomiting, regurgitation, and salivation, are not sufficient to establish a diagnosis, as they are present in all forms of grave œsophageal strictures. Physical signs, that is the passage of bougies, and the X-rays give precise information as to the existence and the location of the stenosis, but none as to its nature. The œsophagoscope shows the lesions and gives exact information as to the nature of the œsophageal stenosis. Cicatricial stenoses in particular present to the experienced eye a very bright, fibrous, characteristic appearance, and upon inspection one can easily differentiate this type of stenosis from that due to compression, epithelioma, or spasm. In cases of doubt, the diagnosis can be verified by the microscopical examination of a fragment of the mucosa removed from the region bordering the stricture. With the œsophagoscope one locates the exact seat of the stenosis, its characteristics, its caliber, the nature of the dilatations or secondary diverticula above the stenosis — in fact, all conditions it is important to determine from the prognostic and therapeutic standpoint.

From the therapeutic standpoint we must determine the degree of the stenosis and its anatomical form, and whether it is passable or impassable to the exploring bougie. If the stenosis is impassable from above, it may or may not be possible to dilate the stricture. For dilatation one should select soft, olivary bougies (rubber or gum elastic bougies are preferable). All rigid instruments must be done away with, especially whalebone bougies *à boule*. They have caused many accidents.

The stricture may be of small caliber and not admit of dilatation with a soft bougie guided only by the hand. With the œsophagoscope, however, it is nearly always possible to find the remains of the œsophageal lumen, which is usually eccentric; and unless the bougie is guided by the eye, it will lose itself in the culs-de-sac above the stenosis. The lumen once found, introduce a filiform bougie, which acts as a key to subsequent dilatation. At least for the first few treatments, dilatation must be endoscopic. It should be done with rubber or gum elastic olivary bougies. By leaving the bougies in place for several hours during the first and subsequent treatments, the dilatation of the stricture is very much facilitated. If the stricture is easily accessible, as an adjunct to the treatment with dilatation one can use the laminaria tents. Some stenoses of the cardia can be dilated by the aid of balloons, such as Gottstein's balloon. The œsophagoscope has reduced markedly the number of strictures formerly considered impassable. In strictures not dilatable by these simple maneuvers, internal œsophagotomy under the guidance of the œsophagoscope has been performed. It is efficient in short valvular strictures. Speaking generally, it is better to employ circular electrolysis. Electrolysis has a dissolving and resolving action on cicatricial tissue, and can cure definitely some stenoses in which the infiltration and sclerosis are not deep.

The stenosis may be impassable from above, even with the aid of the endoscope. Then, after a preliminary gastrostomy, one must resort to retrograde catheterization. Retrograde catheterization can be tried with or without œsophagoscopy after preliminary dilatation of the mouth of the gastrostomy. In this type of stricture, gastrostomy with a large opening into the stomach is the method of choice for retrograde catheterization. In all of these cases, the opening into the stomach is retained for the purpose of feeding the patient. It is a safety valve and provides a means of feeding the patient when alimentation from above is for one reason or another impossible. The œsophagus is placed at rest, and thus œsophagitis, the principal cause of spasm, is combated.

When the œsophagus is totally impassable from above down or from below up (an unusual condition), one must resort to external surgical methods. Here gastrostomy is again the operation of choice. In late years, curative operations have received consideration — external œsophagotomy, œsophagectomy (which has been effective only in the cervical region). Some surgeons have devised ingenious methods of treatment — œsophageal gastrostomy; the implantation of the œsophagus in a fold of the stomach, which method is practicable only in stenoses situated low down; plastic operations, of which œsophago-duodeno-gastrostomy, with the creation of an œsophageal canal, is the most noteworthy example. These are serious operations and difficult ones to bring to a successful issue.

Therefore, when dilatation from above, aided by the endoscope or by means of retrograde catheterization, is not feasible, simple gastrostomy will prolong life, and this is the operation which should be performed. Only a small very number of œsophageal strictures are impassable from above down or from below up. In studying the reported cases, one comes to the conclusion that many serious operations might have been avoided if dilatation under the guidance of the œsophagoscope had been tried. It succeeds in 95 per cent of the cases. If this method fails, one should resort to retrograde catheterization, facilitated by gastrostomy with a large stomachic opening.

Is there a method which permits of direct action upon the cicatricial tissues? According to the author, circular electrolysis exerts a distinct regressive influence upon cicatricial tissue.

Forgues has had, in 20 years, 11 cases of œsophageal cicatricial stenosis; 9 followed the ingestion of lye, two were produced by the ingestion of caustic potash. From this series, Forgues evolves the following conclusions:

In cases of grave cicatricial stenosis, gastrostomy is the operation of choice. When the patient has reached the stage of malnutrition, gastrostomy is an emergency operation. It secures rest to the œsophagus and tends to suppress spasms and to quiet active inflammatory phenomena. Three of Forgues' cases, in which the strictures were im-

passable to the finest bougies, became permeable after gastrostomy. Gastrostomy can be practiced under local anæsthesia. It is of rapid execution and, except in exhausted patients, is well borne. It is essential that the opening into the stomach be continent.

It is well to keep these patients under observation and to find out in what proportion of cases one can maintain the results secured. There are some old cicatricial strictures which cannot be permanently dilated with even the newer methods. In following 8 of his cases, Forgues has found that 3 died of tuberculosis — two, 2 years after the operation; the other 9 years after. In only 3 has he obtained permanent results, and in these the treatment by dilatation was long continued. In one of these patients, a young woman gastrectomized 12 years ago, treatment was discontinued only one year ago.

Delagénière states that despite the progress of œsophagoscopy, 8 per cent of œsophageal cicatricial strictures are still impassable and belong to the domain of surgery. He reports two new cases to show the value of the endogastric route for retrograde catheterization. In one patient, a case of acute stricture, Delagénière, after opening the stomach and practicing retrograde catheterization, observed serious lesions of the stomach, and he performed a jejunostomy. The other patient had a chronic stricture. Retrograde catheterization was at first impracticable, but a small incision in the cicatricial nodule made it possible. By incising the stomach, one is enabled to explore the mucosa, to act upon the cardiac orifice, and can then make either a stomachic opening or a jejunal opening. The œsophagus is put to rest while the stricture is being gradually dilated. Rest is an indispensable factor in dilatation of the œsophagus.

The technique which Delagénière employs is as follows: A pillow is placed beneath the thorax of the patient and a high supraumbilical incision is made. The stomach is incised the same direction as the abdominal wall and as close as possible to the cardia, traction being made upon the margins of the stomach. Palpation of cardia, and by the aid of retractors this orifice is exposed to sight. This is followed either by retrograde catheterization or by puncture or division of the stricture. Closure of the stomach and creation of a stomachic or jejunal mouth. As to consecutive treatment, practice a direct progressive dilatation, or in certain cases, retrograde, if one leaves a thread passing through the mouth, the œsophagus, and the stomachic mouth.

Jacques draws attention to a method of treatment for which he finds frequent indications. Many of his patients were in such a condition of inanition that a prompt solution of the problem was necessary, and the degree of stricture forbade the passage of a sound of sufficient caliber to secure alimentation. In such cases, under the control of sight and with the aid of adreno-cocainization, he introduces in the lumen of the œsophageal tube a semi-rigid bougie of the smallest caliber, leaves it in place, and ties it to one of the teeth of the superior maxilla. However tight the bougie is held by the stricture at first, the fibroid tissue softens after long contact with it, and in from six to twelve hours the deglutition of fluids becomes possible around the catheter left in position.

This can be left in the œsophagus for two or three weeks without any resulting ulceration or intolerance. This continual contact causes a greater or less permeability of the stenosed area, which will then allow either progressive dilatation or circular electrolysis. He believes that the method of leaving the bougie in place for a length of time is an intervention of value, comparatively easy owing to the œsophagoscope, and far more painless than internal œsophagostomy or gastrostomy.

Duvergey has had 10 cases of permeable œsophageal strictures treated by simple gradual dilatation with or without endoscopy. He believes that gradual temporary dilatation, especially when associated with œsophagoscopy, is an excellent treatment for strictures of the œsophagus; but employed alone, without the aid of electrolysis, it must be continued for many years. If dilatation is discontinued too early, the stricture that is in process of recovery recurs. Dilatation must be done with great care and gentleness. It should be done usually with the aid of the endoscope. The latter is of diagnostic and therapeutic value. Cases subjected to simple dilatation demand that bougies be passed in the œsophagus for many years. This is one of the factors which obligate the surgeon to supplement dilatation by modern methods of electrolysis.

Roux believes in gastrostomy. Œsophagoscopy, easy for the specialist, proves very difficult for the surgeon, and especially for the practitioner unfamiliar with its technique. Gastrostomy is an operation of easy execution and of absolute benignancy when done under local anæsthesia. Retrograde catheterism is child's play compared to catheterism from above down. Roux presented the photograph of a young boy on whom he performed an œsophago-jejuno-gastrostomy for an œsophageal stricture accompanied by alarming and reactionary symptoms (fever, pain, expulsion of blood-stained mucus) after each catheterism. The child fully recovered, and his new œsophagus functionates well and shows no signs of stenosis.

Frölich has observed 13 cases of œsophageal stenosis, 10 in adults. He confirms what Forgues states as to the value of gastrostomy, which alone often renders permeable to bougies, stenoses which previous to its performance were impassable. Gastrostomy is a most benign operation. He has obtained good results with fibrolysin in some cases. So as to obtain rapid dilatation of almost impassable œsophageal strictures, he has in a few instances resorted to permanent intubation. He has good results with electrolysis. Some of his patients have

had bilateral swelling of the parotid, others of the submaxillary salivary glands.

Sargon has had 33 cases. In most of them œsophagoscopy has proven valuable, either from a diagnostic point or as an aid to dilatation. Out of 33 cases he had 7 deaths, or rather 5, as there must be eliminated 2 congenital, incurable cases. These deaths were due, one to diphtheria, one to broncho-pneumonia, one to pleuro-pulmonary gangrene after cure of the œsophageal stenosis, one to cachexia existing before the dilatation, one to œsophagitis.

Therapeutically he divides his cases into three classes. In the first, the simple cases, slow and gradual dilatation suffices. The sounds must remain in position as long as possible.

In the second class, those in which œsophagoscopy is necessary, one seeks the orifice, which is usually lateral, and then dilates under control of sight, leaving the sound in place for a moment. At times one resorts to internal œsophagotomy, the indications for which are very few (membranous strictures). Sargon does not make a deep cut, he only scarifies. Œsophagoscopical electrolysis is of service. Recurrence may follow its use.

In the third class are included cases necessitating external surgical intervention. Gastrostomy is indicated as an emergency operation to combat inanition in persons in whom dilatation is impossible or difficult, or when repeated dilatation of the œsophagus necessitates general anæsthesia, as in children; it excites pulmonary phenomena in patients suffering from bronchitis.

Gastrostomy performed under local anæsthesia is usually inoffensive. In children the gastric opening is always continent. It permits in complex cases retrograde œsophagoscopy, which is easy and which has given the writer some very good results. Gastrostomy allows retrograde dilatation, by the aid of which all strictures can be controlled. The difficult step is to pass a thread either from below or from above. If the thread has been passed from above one must seek it in the stomach, either with the gastroscope or, after dilatation of the orifice made by the gastrostomy, with the finger. In two cases he could not pass the thread. He then performed a low cervical œsophagostomy. Endoscopy by means of this channel was assured and without danger. He then succeeded in passing a thread and in establishing mouth feeding. As to the orifice of the œsophagostomy, it closed of itself. Both patients recovered, but one died from a pleuro-pulmonary gangrene a few months after the cure of the œsophageal stricture.

In the course of these dilatations, except in tracheotomized patients, one must never make use of retrolaryngeal continuous dilatation. In two cases in which this was done, chondritis developed and tracheotomy had to be performed. Patients recovered. The most complex cases yield to dilatation guided by the œsophagoscope. Some very right or multiple strictures yield only to gastrostomy, to retrograde dilatation; and some necessitate high and low œsophagoscopical maneuvers. Low cervical œsophagostomy is only utilized in patients which have been gastrostomized, and then only to permit of œsophageal dilatation by the cervical wound.

Berard agrees with essayists with two exceptions. Strictures after external œsophagotomy are of only exceptional occurrence. In 10 years he has performed 17 external œsophagotomies for the removal of foreign bodies, almost always infected. He has looked up his patients, and not one presents any evidence of œsophageal stenosis. The sloughing infections which septic foreign bodies determine at the point of arrest are responsible in a large measure for the stenoses observed after external œsophagotomy.

In strictures of the simple inflammatory type, œsophagitis secondary to a pure primitive spasm is frequent. He is inclined to believe that the spasm is almost always secondary to an initial lesion of the mucosa, at the starting point of the stenosing reflexes. When strictures said to be spasmodic appear in patients past the fortieth year, one must think of a submucous neoplasm, of a slowly developing carcinoma.

Radioscopy is of value in these cases. It should precede all endo-œsophageal explorations, because an aortic aneurysm compressing the œsophagus, though not frequently found, contraindicates œsophagoscopy. In the hands of the most expert, a stenosing aneurysm, especially if its pulsations be weak, may be overlooked by the œsophagoscope. Œsophagoscopy under local or general anæsthesia is a very precious exploratory method, but it is not always possible (intense spasms, deviated cervical vertebræ, etc.). We get very little action upon œsophageal infections as long as the food in its passage keeps up irritation and infection of the ulcerated zones. Therefore, in severe cases of œsophagitis put the organ at rest as much as possible by substituting for buccal feeding rectal alimentation, the value of which is debatable, or gastrostomy. Gastrostomy performed under local anæsthesia with a continent orifice is a benign and efficient operation. The stomach must not be sutured directly to the skin. Feeding through the opening made by the gastrostomy can be suspended as soon as the œsophageal infection is healed. Often the spasm disappears after gastrostomy, and thus intra-œsophageal maneuvers are simplified. Gastrostomy allows retrograde catheterization as well as catheterization from above down, together or separately, a mode of treatment which usually cures cicatricial œsophageal stenosis of a serious nature. These methods failing, one can resort to low cervical œsophagostomy, which furnishes more direct access with endoscopy to intrathoracic strictures of small caliber.

All these methods, aided by endoscopy, enable one to cure functionally œsophageal stenoses without resorting to endothoracic procedures, the mortality of which is very high.

Oser gives the statistics of cicatricial œsophageal stenoses treated at Von Eiselsberg's clinic during the past ten years. Forty-seven patients have been treated for œsophageal stenosis, secondary to burns by caustics. In 29, corrosive liquids had been taken intentionally; in 18, by mistake. In 35 cases caustic potash had been taken; in 3, muriatic acid; in one, lye; in one, sulphuric acid; and in one, quicklime. Twenty-seven were treated slowly, with repeated dilatation of the œsophagus. Twenty-one of these were perfectly cured. He had only one death following the introduction of the bougie. In 14 cases gastrostomy followed by retrograde catheterization was ample. Ten of these patients were cured, one was not heard from, and one died of post-operative peritonitis. Gastro-enterostomy was performed 5 times; 4 patients were completely cured. The fifth patient was not seen again. In one case, owing to a deep burn of the pylorus, the pylorus was resected. Several laparotomies were performed, one in a case of œsophageal stenosis complicated by pyloric stenosis. The patient, a woman 34 years of age, had attempted suicide by drinking nitric acid. One month after the suicidal attempt, jejunostomy was performed; one month later, gastrostomy, followed by retrograde catheterization; six months later, jejunorrhaphy and retrocolic gastro-enterostomy; and five months after this, gastrorrhaphy. The patient recovered.

J. Dumont.

SURGERY OF THE ABDOMEN

ABDOMINAL WALL AND PERITONEUM

Gosset: Transverse Incision in Operations upon the Gall-Bladder and the Bile Channels (De l'incision transversale dans les opérations sur la vésicule et les voies biliaires). *Bull. e. mém. d. l. Soc. d. Chir.*, 1912, xxxviii, 1174. By Journal de Chirurgie.

In operating upon the gall-bladder and the bile channels, the incision employed must give free access to these organs, must allow of their easy inspection, and must permit the performance of all complementary operations upon the stomach, the duodenum, and even upon the appendix. Gosset shows that of all the incisions so far recommended there is only one — the undulated incision of Kehr — which fulfills these requirements. Kehr's incision has one great defect: it does not respect the nervous fibers of the rectus muscle. There results from this a nutritional disturbance of the muscle, and the possibility of ultimate hernia formation. Personally, in 142 operations in which Gosset employed the Kehr incision and drainage, the author had four hernias, all occurring in fat subjects. Therefore, during the last few years he has had a tendency to come back to physiological incisions, and especially in surgery of the hypochondrium, to transverse incisions that spare the nervous filaments and therefore insure the normal nutrition of the muscles. Of these, the one which actually has the most advocates is the Sprengel incision. This is a hook-shaped incision so made that the short external arm of the hook corresponds to the direction of the great oblique muscles, this muscle being cut parallel to the course of its fibers. The long arm of the hook cuts transversely the right rectus abdominis muscle, and in case of need of more room, the rectus abdominis of the left side. Sprengel uses this incision at two different levels, according to the location of the liver. The high incision is in the superior portion of the epigastrium. It cuts the right abdominis muscle between the first and second aponeurotic intersections. It has the disadvantage of not leading very directly to the gall-bladder, and also of not permitting extension outward. Therefore Gosset prefers the low transverse incision, situated three fingers' breadth above the umbilicus upon the second and third aponeurotic intersections of the rectus muscle. The patient lying horizontally upon his back, a sandbag is placed at about the level of the angle of the scapula. A transverse incision is made from the external border of the right rectus to the median line, incising the anterior sheath of the rectus muscle. The muscular fibers are rapidly divided, hæmorrhage from the epigastric artery being controlled by hæmostatic forceps. The posterior sheath and the peritoneum are divided and the abdominal cavity is opened. Retractors are inserted, the wound edges forcibly separated, and a few instants are devoted to inspection and exploration. One determines then whether or not to prolong the transverse incision. The external hook recommended by Sprengel increases the operative field and facilitates drainage. To obtain more room, it may be necessary to incise the left rectus muscle. This long transverse incision is not mutilating, or only slightly so. It does not cut any muscle fibers, and its closure, in the opinion of those who have used it, is not difficult. It has been said that this transverse incision is time-consuming — Kehr speaks of from 15 to 20 minutes. Gosset has never taken more than two or three minutes to make this incision. It has also been said that after division of the left rectus muscle, the distended stomach protrudes into the operative wound. A large compress, slipped under the left lip and retained in position by a retractor, controls the stomach.

The interesting point is the ease of access that the Sprengel incision gives to the deep biliary channels. When one is accustomed to Kehr's incision, the first attempts with the Sprengel incision are unsatisfactory; but one quickly becomes accustomed to this method, and learns by the clever use of retractors to utilize it to the best advantage. Except in the very complex cases one learns to content himself with the single division of the right abdom-

inal muscle. In fact, Kehr himself has abandoned the undulated incision; he now incises vertically the linea alba, in the epigastric notch, and supplements this by a complete transverse division of the rectus muscle. After having practiced upon the biliary tract the indicated operation, it is well before establishing drainage and closing the abdominal wall to seek the appendix and to remove it. If the appendix has a low position, is adherent and has never caused any disturbance, it may be left in place; but if removal is deemed necessary, it is easily accomplished through this incision.

Drainage will be established at the external angle of the incision. Gosset always drains, even after a simple uncomplicated cholecystectomy with closure of the cystic duct, because the ligature of the cystic duct may slip and then drainage is a precious help; also the denuded hepatic surface, formerly covered by the gall-bladder, may give rise to an outflow of bile for the first 48 hours, and drainage enables this bile coming directly from the liver to escape externally. After operation upon the infected common bile duct, drainage is essential. The drainage tube is put directly into the hepatic duct and gauze wicks are placed in contact with the opening in the common duct. Gosset sutures the abdominal wall almost completely. This abdominal closure is in two layers: U-shaped sutures approximate the deep sheath of the rectus; interrupted including the muscular fibers and the anterior sheath of the rectus; cutaneous stitches.

In four cases of cholecystectomy, Cunéo made use of the transverse incision. This incision gives ample room. In easy cases one can often avoid cutting the rectus muscle by vertically dividing the outer border of the anterior sheath of the rectus and then retracting the muscular fibers inwardly. The transverse incision can be employed in a large number of abdominal operations, especially in nephrectomy. J. Dumont.

Fichbein: A Contribution to the Bacteriology of Peritonitis, with Special Reference to Primary Peritonitis. *Am. J. M. Sciences*, 1912, cxliv, 502. By Surg., Gynec. & Obst.

This paper is written with two purposes as its object: (1) to discuss the records in the pathological laboratory of Rush Medical College, of bacteriological examinations made of material obtained from the peritoneal cavity after death from peritonitis; and (2) to compare the results of this analysis with other reports on the bacteriology of peritonitis. The statistics compiled by Flexner from cases in Johns Hopkins Hospital and those by Monahan from the Massachusetts General are taken by the author to be the most reliable and voluminous. The author believes the classification of Flexner to be the best, viz., primary, exogenous, and endogenous.

Primary peritonitis occurs as a result of an infectious focus elsewhere in the body, the infecting organism being brought by the blood or lymph stream to the peritoneum.

Exogenous peritonitis occurs as a result of wound infection, gunshot, abortion with septic instruments, etc., and as a sequence to laparotomy.

Endogenous peritonitis occurs as a result of an organism coming from foci in relation to the peritoneal cavity, the most common being various affections of the appendix. Further division is made into sure and mixed types.

In these studies various organisms were found in symbiasis, such as colon bacillus with bacillus pyocyaneus. The colon bacillus was found 183 times in 342 cases, commonly with other infections, but it may occur alone, and is seldom if ever a blood infection, thereby not giving rise to a primary peritonitis. Staphylococci were found 108 times in 270 cases. The pneumococcus in primary peritonitis is shown to be relatively of great importance. The bacillus mucosus is also shown to be an important factor.

The majority of cases of peritonitis are endogenous, and are due to a combination of colon bacilli and others, usually staphylococci and streptococci, the appendix usually being the seat of the original focus, the female organs of generation being next in importance. Some observers have pointed out a close relation of anærobic organisms to appendicitis, and the author advocates making such determinations in all instances.

The gonococcus has not been demonstrated culturally in post-mortem peritoneal fluids, probably due to lack of proper development in cultivating methods or because no effort has been made. Primary peritonitis is more common than is ordinarily supposed.

In this report, 25 per cent of all cases are of the primary type and practically all cases showed a lowered resistance due to some chronic condition, as cirrhosis of the liver, tonsilitis, marasmus, etc. It would seem that the word "idiopathic" could be entirely dispensed with in regard to peritonitis.

H. A. Potts.

Lecene: Prophylaxis of Peritoneal Infections in Gynecological Operations (Prophylaxie de l'infection péritonéale opératoire en gynécologie). *Ann. d. Gyn. e. d'Obst.*, 1912, ix, 513. By Journal de Chirurgie.

Bacteriologically and theoretically, operative infections of the peritoneum have two different origins: they may be exogenous, coming from the atmosphere, from the surgeon, from his assistants, from the instruments, the suture material, the compresses; they may be endogenous, coming from the patient herself — for instance, insufficient disinfection of the skin or of the vagina — or the infection may be caused from the opening of a septic cavity. Absolute asepsis cannot be obtained. The wound is always exposed to atmospheric contamination. This minimum unavoidable contamination is not of practical importance, because the living organism is provided with natural means of defense. These may be exalted.

(*a*) Fight against infection. (1) Exogenous infection. Atmospheric infection is unavoidable. It can be lessened by spraying operating rooms, previous to operations, with oxygenated water or with steam vapor under pressure. Instruments, compresses, and suture material must be thoroughly sterilized. The most important progress recently made is the use of sterilized caoutchouc rubber gloves. They are a safeguard against the always imperfectly sterilized hands of the surgeon. Before putting on the gloves, the hands should be surgically cleansed as thoroughly as possible. (2) Endogenous infection. The surest method of disinfecting the skin and vagina is by mopping the surface with tincture of iodine or iodated chloroform. There must be no preliminary washing. The application of a sterilized rubber varnish that is removed with benzine has not become popular in France. Hot air disinfection of the cervix uteri, its preliminary suture in sloughing fibroids, and closure of the vagina by means of right angle forceps, are all methods that are often indicated.

Accidental opening of the intestine necessitates suturing and mopping of the contaminated peritoneal surface. Antiseptics should not be used in the peritoneal cavity.

(*b*) How shall we preserve nature's local means of defense? It is important to keep intact the peritoneal endothelium, to remove all extravasated fluids, all necrotic tissue, and to isolate infected zones. To realize this, the patient should be placed in suitable posture (Trendelenburg), so that the surgeon may operate with ease. Use a large incision and good retractors and perform the operation under the control of sight; blind enucleation is dangerous. The abdominal cavity should be well protected and the field of operation should be limited. For protection, wet, warm compresses are preferable to dry. All antiseptic applications to the peritoneum are harmful and should be avoided. Rapid operating and the selection of that technique which is anatomically appropriate to the case at hand are important. By an appropriate anatomical operation, one will often avoid rupturing pus tubes.

Bleeding points should be ligated and large pedicles should be avoided. For hæmostasis of the bleeding surface, peritonization seems preferable to thermo-cauterization. Denuded surfaces and pedicles should be covered with peritoneum. This minimizes the tendency toward intestinal adhesions, post-operative occlusions, and secondary serobloody oozing, and keeps septic inoculation from spreading to the cellular tissue. Subperitoneal cellular tissue is less active than the peritoneum in its defense against infection. Drainage is not always necessary.

In the absence of septic inoculation, the peritoneal cavity should be closed without drainage (cysts of the ovary, simple fibromyomata, non-ruptured gestation). The presence of an ascitic or bloody effusion, incompletely removed, is not an indication for drainage, as the drains are quickly surrounded with adhesions and they no longer drain the peritoneal cavity. They serve only to guide outward secretions coming from a limited area of the peritoneum and to extraperitonealize the drained region.

In the decortication of tumors where hæmostasis is often insufficient, it was customary for a time to tampon with Miculicz' drain. Now, as a matter of fact, the custom is to peritonize as much as possible denuded areas and to drain with a rubber tube.

Drainage is needless for a simple vaginal section, for an intestinal rupture which has been carefully sutured. It is indispensable in pus collections, in sloughing, and in infected fibroids.

How shall we drain? The hollow cylindrical (rubber or metal) drain does well for liquids, but poorly or insufficiently isolates the portion of the peritoneum drained. Gauze drains liquids poorly, but isolates well that portion of the peritoneal cavity with which it is in contact.

Abdominal drainage is more aseptic but its asepsis is of short duration. At the end of three or four days skin microbes infect the channels. It has the disadvantage of not being dependent. It does not permit complete exclusion at the point of drainage. It predisposes to eventration if kept up for a few days.

Vaginal drainage has the disadvantage that it leads into a cavity the permanent asepsis of which cannot be assured. It is dependent. When associated with transverse walling-off, it permits complete exclusion of the true pelvis. Whenever applicable, vaginal drainage should be used in preference to abdominal.

(*c*) Can we increase the resistance of the peritoneum to infection? Interesting experiments have been made in this connection, but nothing definite can be stated. The following methods have been used: Normal salt solution, heated horse serum, subcutaneous injections of sodium-nucleinate, intraperitoneal injections of camphorated oil, injections of pure oxygen, and aërothermotherapy. Each method has advantages and inconveniences. None has given constant results. J. Dumont.

Arnaud: Intraperitoneal Injection of Oxygen in the Treatment of Acute Diffuse Peritonitis
(L'injection intrapéritonéale d'oxygène dans le traitement des péritonities diffuses aiguës). *Lyon Chir.*, 1912, viii, 411. By Journal de Chirurgie.

The method of intraperitoneal injection of oxygen was first thought of about 1910 by Thiviar, employed after him by Bainbridge, Mecker, and Rouffaut, and is now highly extolled by Weiss and Sencert, who owe to it a beautiful series of 21 grave cases of diffuse peritonitis of every form, out of which they secured 15 recoveries, or 73 per cent of success.

The three personal cases which Arnaud reports in this article also deserve to draw attention to a method which is very little employed and yet seems to be very useful. None of the three cases yields

an absolute demonstration of its value, since two of the cases ended with death and the third would probably have recovered, even without oxygen; but all the three cases put into plain evidence the favorable effect, local as well as general, which results from oxygenation of the peritoneum. There follows, therefore, a brief account of these cases.

1. A boy 14 years of age, 15 days previously had been operated for an abscess of the appendix; at the present there were signs of generalized peritonitis. Drainage of the large peritoneum was impossible, owing to the adhesions which connected the flexures of the small intestine. Therefore intraperitoneal injections of serum were made, and then injections of oxygen. The latter were repeated three times a day, about 30 liters of the gas being given at each injection (the injection being made very simply by attaching a simple gas bag to the drain). Improvement was evident. The patient passed gas and solid matter; the abdomen became supple; secretion through the drain became more copious; the wound took on a better aspect. But pulmonary symptoms supervened and the patient died at the end of eight days.

The autopsy, besides showing foci of suppurative bronchopneumonia and an unrecognized subdiaphragmatic abscess, which seems to have been the cause of death, also showed that the peritoneum presented no traces of inflammation and that the adhesions had completely disappeared under the influence of the oxygen.

2. A boy of 11 years had been operated for appendicitis associated with a pelvic abscess; his condition remained very disquieting after the intervention, and diffusion of peritonitis was to be feared. Injections of oxygen were made twice a day, as in the preceding case (50 liters per injection). At the end of 48 hours the general and local state was very satisfactory and the patient had a spontaneous and copious stool. The injections of oxygen were therefore discontinued. Convalescence followed after that without any further incident.

3. The third case was a woman 41 years of age. Septic peritonitis had followed a miscarriage; a colpotomy had brought only a little dull colored liquid, and had not in the least reduced the symptoms. The condition was very serious: pulse 140, temperature 39.50, the vomited matter greenish, the abdomen tympanitic, the nose and the extremities cold. A laparotomy was performed, which showed that the peritoneum contained only a few spoonfuls of liquid and that the flexures of the intestine were distended, violet colored, and completely paralyzed. An abdominovaginal drain was installed, also another drain which reached as far as the diaphragm. Then the abdomen was closed, without any further maneuvers. Through the drains a continuous current of oxygen was passed (600 liters during 36 hours). During that time an indisputable improvement was noted: the patient became warm again, the pulse remained strong, and respiration was easy; fluid was passed copiously through the drains; repeated violent colic gave evidence of the returning contractility of the intestines, and the patient even passed a little gas and some liquid matter. At the end of 36 hours, however, she became weak and every hope seemed to be lost. The current of oxygen was interrupted; immediately cyanosis set in, the patient became cold again, and suffered collapse; two hours later she died.

Intraperitoneal injections of oxygen have both a general and a local effect. Considerable absorption of the gas by the serous membrane constitutes a veritable "intraperitoneal hæmatosis," which renders respiration easy, the pulse more regular, and relieves arterial tension. Perhaps the oxygen itself, thus infused into the blood, may destroy the microbes and neutralize their toxins.

Locally the oxygen acts less on the microbes themselves than on the tissues, the defensive powers of which it increases. It causes considerable serous exudation with resulting hyperleucocytosis, which purges the peritoneal cavity; it revives peristalsis of the intestines and counteracts the intestinal paralysis which is so dangerous in peritonitis; finally it checks the production of adhesions and even brings about the absorption of those which have already been formed.

As a chance means, and when the equipment is insufficient, we may employ intermittent insufflation of the gas by means of an ordinary gas bag attached to an abdominal drain. But it is altogether preferable, when possible, to employ continuous insufflation by means of an oxygen tank, equipped with a regulating device which limits the outflow of gas to about one liter per minute; a flask of warm water through which the gas is passed would warm the gas and eliminate any dust particles.

The employment of intraperitoneal injections of oxygen will, of course, not prevent recourse to other methods which are at present employed in the treatment of peritonitis, such as Fowler's position, rectal injections of serum, injections of camphorated oil, and so forth. All these methods mutually support each other, and the disease is so serious that one should not neglect any of them.

CH. LENORMANT.

Floderus: Primary Mesenteric Gland Tuberculosis from the Surgical Viewpoint. *Nord. med. Ark.*, 1912, xlv, 1. By Surg., Gynec. & Obst.

DEFINITION

Primary mesenteric gland tuberculosis, considered from the pathologist's standpoint, includes only those cases in which a thorough autopsy fails to reveal a primary tuberculous focus, healed or active, in the body. Clinically, all cases are included in which a careful anamnesis and physical examination fail to locate a primary focus. The surgeon considers every case primary in which no tuberculous lesions can be found in the area drained by the mesenteric glands. Secondary infection of the glands, which occurs with far greater frequency in consumptives after infection of the intestinal mucous membrane

by swallowed sputum, is not as important surgically, because the tuberculous process in other parts of the body dominates the clinical picture.

HISTORICAL

Ball, in 1775, first mentioned tuberculosis of the mesenteric glands as a part of "tabes meseraica." Baumès described the disease accurately in 1788. In the last century it has been described with great precision by French authors, and lately by Hémery in 1901, Carrière in 1902, and Vautrin in 1909. In the English and American literature a considerable number of operated cases have been reported, especially by Fagge and Corner. Scattered case reports have appeared in the German literature. Brunner mentions 4 operated cases in 1907; Mächtle in 1908 collected 15 and Thiemann in 1910 added 11 cases. Floderus has written an exhaustive monograph on this subject, bringing together all the available cases (about 75) from the literature, and giving a detailed account of 18 personal cases, in which the diagnosis was confirmed by operation in 15, and radiographically in 3.

ETIOLOGY

In considering the pathogenesis of primary mesenteric gland tuberculosis it is necessary to discuss the etiology of primary intestinal tuberculosis. Recent autopsy statistics show that this is much more common than was hitherto thought. Among adults, von Hausemann found 25 cases in 8000 to 10,000 autopsies, i. e., 0.3 per cent. Lubarsch, in over 1000 autopsies, found 56 cases, or 5.1 per cent. In children, the percentages given by various pathologists range from .1 per cent to 5.1 per cent of all cases, and as high a figure as 25 per cent of all tuberculous cases. Investigations on children dying of acute non-tuberculous diseases, as carried out by Councilman, Baginsky, Mallory and Pearce, Wagener, and others, show a surprising percentage of cases with primary intestinal tuberculosis, varying from 0.5 per cent to 21.1 per cent. The great divergence shown by these figures is due to the difference in technique used and the care and exactness with which the histopathological examination was carried out, as well as to social and geographic conditions.

The statistics on primary mesenteric gland tuberculosis are less accessible. Hof, in a series of 12,336 cases, of which one third were children and two thirds adults, with 3630 tuberculous cases included, found 126 cases (about 1 per cent) of primary tuberculosis of the mesenteric glands. Other authors give larger figures. In general, the statistics show that the intestines are primarily involved about three times as often as the mesenteric glands. Clinically, about 100 cases have been reported. In children, certainly tuberculosis is the most important affection of the mesentery.

Infection usually occurs by way of the alimentary tract. Whether hæmatogenous infection can occur is a debated question. Dobroklonsky, in 1890, and others proved that the tubercle bacillus can infect the mesenteric glands without leaving any trace of its passage through the normal intestinal mucosa. The presence of virulent tubercle bacilli in mesenteric glands has been demonstrated by animal inoculations where microscopic examination failed to show any organisms. MacFadyen and MacConkey examined the mesenteric glands in 28 children. Among 8 of these who had clinical signs of tuberculosis, 5 showed virulent tubercle bacilli in the glands after inoculation. Of the 20 who showed no clinical or gross pathologic signs of tuberculosis, at least 5 were shown to contain virulent organisms in the mesenteric glands. Apparently healthy glands, therefore, may contain virulent tubercle bacilli. In fact the bacilli have been known to retain their virulence for as long a period as thirty years in a latent focus in a lymph gland.

The exact origin of the tubercle bacilli which penetrate the human intestinal tract is still being debated. The two opposing views of aerogenous versus alimentary infection, as upheld by von Behring and Koch respectively, acquired a new aspect when Koch announced the duality of human and bovine tuberculosis in 1901. Subsequent investigations showed that the human type of tuberculosis is common, not only in pulmonary affections but in affections of other organs as well. Some evidence has been brought forward to show the bovine origin of primary intestinal tuberculosis. Salmon has shown that the mortality from this disease is greater in Great Britain than in the United States, and thinks this is due to more effective legislation regarding milk sterilization in the United States. Hohlfeld has reported 30 cases of intestinal infection shown by inoculation to be of bovine origin. Dunne reports an epidemic of bovine origin in 4 children fed on the milk of tuberculous cows. On the other hand, Gaffky and Rothe, in the Institute for Infectious Diseases in Berlin, investigated 400 necropsies in children, and showed that the type of tubercle bacillus found in the mesenteric and bronchial glands in 78 cases was unquestionably of the human type in 75. The prevalence of tuberculosis in Japan, where cow's milk is not used in the nutrition of children and where most cows are immune from the bovine bacillus, is of great significance. Kitasato found a mortality of 7.6 per cent from tuberculosis in over 1,840,000 deaths in the years 1899 to 1900. Among these there were not less than 16,842 cases of primary intestinal affection. It seems probable, therefore, that the food products of diseased animals (milk, butter, etc.), and the bacilli excreted by human beings play an equivalent rôle in the pathogenesis of intestinal and mesenteric tuberculosis. Heredity plays no rôle in the latter. Both sexes are equally affected. The disease usually manifests itself in the first two decades of life, less often in the following three decades. The average age of onset is about 15 years. Trauma seems to be an exciting cause. Acute infections during childhood, such as measles, typhoid, pertussis, etc., and particularly acute

infections of the ileo-cæcal region, i.e., appendicitis, are frequently exciting causes.

PATHOLOGY

Anatomically, the mesenteric glands correspond to other tuberculous glands but show a greater tendency toward calcification, The tuberculous process spreads in a centripetal direction. Those glands in closest proximity to the intestine are first affected. Occasionally retrograde lymphogenous infection can occur. The glands grow excentrically, forming hard, pedunculated tumors. The localization is variable. They seldom are found in the cephalad or caudad segments of the intestinal canal. Their site of predilection is the mesentery of the ileum and ileo-cæcum. Floderus found the ileo-cæcal glands affected in 12 of his cases. Infection extends along the glands of the ileo-colic vessels toward the root of the mesentery. In a few cases the retroperitoneal glands were primarily involved. Rarely the glands in the transverse mesocolon and the mesocolon ascendens become affected. Mesenteric lymphomata are a source of danger, as they may involve neighboring vital organs, such as the intestines, bile tracts, and the larger abdominal vessels. As a result of fibrous mesenteritis and adhesions, the intestinal walls are compressed and partial stenosis occurs. The glands may and frequently do suppurate and rupture their capsule. The abscess may spread between the serous layers of the mesentery into the retroperitoneal tissue, or it may perforate into the peritoneal cavity. The outer layers of the intestine may ulcerate as a result of a suppurative perilymphadenitis. Rarely the large abdominal vessels become eroded.

SYMPTOMATOLOGY

The symptom-complex of primary mesenteric gland tuberculosis is not characteristic. The onset is insidious and preceded by a latent period of variable length. In many cases the disease remains latent throughout and is not diagnosed clinically. Among the initial symptoms may be mentioned abdominal pain, malaise, anorexia, loss of strength, and emaciation. In some cases subjective symptoms are absent, and the accidental finding of an abdominal tumor leads to diagnosis. Abdominal pain is the most constant symptom, and occurs in three fourths of the cases. It may be continuous, intermittent, or a periodic griping pain. In children it is difficult to interpret. It frequently simulates appendicitis. When severe at the onset it may indicate grave complications, such as ileus or perforative peritonitis. The pain is usually localized in the umbilical and cæcal regions. It is not affected by posture. Nausea may accompany it, and vomiting frequently occurs. Prognostically, vomiting is an unfavorable sign, as it may indicate the onset of ileus or peritonitis.

The most pathognomic symptom is the presence of a tumor mass. In advanced cases a large lymphomatous tumor may be present, with a high degree of emaciation. Sooner or later in the course of the disease, the motor power of the intestines is affected. Constipation may be progressive and lead to partial obstruction of the intestines. The ileus phenomena are due either to mechanical compression of the gut by the tumor mass or to fibrous and suppurative mesenteritis, with formation of intraperitoneal synechiæ. Necrosis of the compressed portion of the intestine has been known to cause perforation and peritonitis. In some cases diarrhœa is present, and may alternate with constipation. Persistent diarrhœa which does not yield to medical treatment leads to the suspicion of a primary intestinal focus. Still it has been shown in many cases with a history of diarrhœa, in which part of the intestine was removed together with the mesenteric glands, that the intestine showed no signs of tuberculosis. The intestinal symptoms frequently disappear after removal of the mesenteric lymphomata. The diarrhœa may be due to a septic enterocolitis in some cases. Blood and mucus have been frequently observed in the stools. The blood has disappeared in some cases after operation and is probably due to stasis in the mesenteric veins. Bloody stools do not necessarily point to ulceration of the intestine.

Fever occurs in practically all cases at some stage in the development of the disease. Afebrile cases have been reported, but if the observations are carried over a sufficient period some rise of temperature will eventually be observed. Floderus observed a rise of temperature to 39° and 39.8° C. in nearly every one of his cases, even with subfebrile periods. High temperatures indicate suppuration, peritonitis, or the onset of a miliary tuberculosis. Corner has reported a case with extensive suppuration with afebrile periods. In a case in which Grüneberg removed a liter of pus from the abdomen, the temperature was normal.

The commonest complication is peritonitis. This is either of the fibrous or exudative type. When the glands suppurate, the pus may rupture into the peritoneal cavity. Tuberculous peritonitis occurs by direct extension or by rupture of a gravitating tuberculous abscess. In two cases reported by Floderus, the clinical picture was that of a tuberculous peritonitis and the suppuration of the glands was discovered at the operation. Icterus is an uncommon complication, and may be due to compression of the ductus choledochus by a large tumor. Hæmorrhage from erosion of a large mesenteric vessel has been observed in two cases. Ileus as a complication, or rather a natural sequel of the disease, has already been mentioned. Tuberculosis in other organs, as the cervical glands, lungs, pleura, etc., is not a common observation in the cases reported in the literature. Branson and Carrière claim that the mesenteric glands next to the bronchial glands are the most important source of miliary tuberculosis.

DIAGNOSIS

The most positive finding on which to base a diagnosis of mesenteric gland tuberculosis is a tumor

mass. Inspection of the abdomen may reveal a circumscribed swelling. Visible peristaltic waves are seen when there is obstruction. Combined palpation per rectum under narcosis is the only sure method of demonstrating the abdominal lymphomata. The tumor is usually single, occasionally multiple. It varies in size from a hazel nut to a cocoanut. Larger tumors, composed of several lymphomata, have an irregular, nodular feel. The consistence is hard and elastic. Fluctuation is rarely present. The tumor is usually freely movable, and moves with respiration also. Immobility of the mass indicates extensive adhesions to surrounding organs. Sensitiveness to pressure is a common but not a constant phenomenon. A high degree of tenderness speaks for suppuration, although the absence of tenderness does not exclude suppuration. The percussion note over the tumor is not altered as a rule. Free fluid can sometimes be demonstrated, and points to complications.

Radiographic examination is of great value in the diagnosis. Many cases in which the X-rays showed a shadow in the ileo-cæcal region have been wrongly interpreted as calculi in the kidney or ureter. Floderus has shown the presence of calcified mesenteric glands in 5 cases by this method. It has its greatest value in chronic cases in which the local symptoms are masked. Serological examination by von Priquet's method is not of great value in this disease, according to Floderus.

DIFFERENTIAL DIAGNOSIS

Little attention has heretofore been paid to the diagnosis of mesenteric gland tuberculosis. Among all the cases reported in the literature, only 7 were diagnosed before operation. Of 12 cases in which Floderus made a positive diagnosis, 7 were confirmed by operation and 3 by the X-ray. Kukula diagnosed his case as a solid tumor of the mesentery. Bier as a retroperitoneal tumor. Marchant, Vautrin and Routier mistook their cases for ileo-cæcal tuberculosis. In several cases tuberculous peritonitis was suspected. In fact, the differentiation of these 3 conditions is very difficult. Ileo-cæcal tuberculosis affects adults chiefly. Primary mesenteric tuberculosis is twice as common in children, according to Floderus. In circumscribed tuberculous peritonitis there is a fixed mass in the abdomen. An intraperitoneal exudate speaks for a tuberculous peritonitis. In some cases with suppurating retrocæcal lymphomata, the tumor may become fixed also. In many cases an absolute diagnosis is impossible without operation.

Tuberculous glands in the ileo-cæcal region have been frequently confused with appendicitis. The pain is, as a rule, weaker in tuberculosis, the onset is less stormy, the fever is not so high at the onset, and muscular rigidity is less pronounced. When ileus or peritonitis occurs, the diagnosis has been invagination, or volvulus in some cases, or an indefinite diagnosis of peritonitis. Abdominal tumors of all kinds must be differentiated. Kidney tumors, nephrolithiasis, floating kidney, echinococcus cysts, etc., come into question. Fæcal masses can be excluded by giving a laxative. Periodic fevers of various sorts, especially typhoid, must be excluded. Floderus thinks that tuberculous glands, next to chronic infections of the tonsils and adenoids, are the commonest source of the indefinite periodic fever so common in childhood. In just these cases the X-rays and subcutaneous tuberculin injections are of great value in the diagnosis.

PROGNOSIS

The majority of cases of primary mesenteric gland tuberculosis are latent, and therefore benign. The minority offer an unfavorable prognosis. Exitus is brought about by peritonitis, miliary tuberculosis, or marasmus. A few cases of post-operative death are recorded.

THERAPY

After the diagnosis is made, treatment is primarily medical, provided there are no immediate indications for surgical treatment. Prophylaxis is important. All sources of further tuberculous infection from questionable food products or from human sources should be eliminated. The patient is instructed to wear a firm abdominal binder. Abdominal traumata and violent exercise must be avoided. At the first sign of appendiceal involvement, laparotomy should be performed and the appendix and the affected glands removed. Post-operative treatment includes absolute rest in bed for one to two months at least. Exercise is to be carefully avoided at all times after the operation. X-ray therapy is worthy a trial. Floderus has employed it in two cases. In one, after 22 exposures, the patient's condition improved and the temperature dropped. The second was an advanced case with retroperitoneal lymphomata, and was not improved. The X-rays should be tried where operation is contraindicated or refused.

The first radical operation for primary mesenteric gland tuberculosis was performed by Czerny in 1887. This case was accurately diagnosed before the operation. The patient died of septic peritonitis. The first successful radical operation was done by Bier in 1890. Kukula, in 1896, first resected the intestine in this disease. On reviewing the histories of the cases operated upon, it was found that the duration of the disease prior to operation was a short one. Seventeen cases of about 50 showed symptoms for a month or less. Twelve presented marked symptoms for two weeks. In 9 cases the disease had existed eight to ten years or more.

The technique of the operation has been well worked out. The incision naturally depends on the position of the tumor. The median incision must be considered as the normal one. It gives easy access to the mesentery and gives sufficient space for extirpating the commonest, i. e. the ileo-cæcal, lymphomata, and if necessary the segment of gut drained by them. Some operators prefer a right-sided incision, as in appendicitis. After entering the peritoneal cavity all the groups of glands in the

mesentery should be carefully palpated, as small glands next to the intestine are easily overlooked, especially in fat individuals with considerable omental fat.

The ileo-cæcal region, and the mesentery supplying the terminal two feet of the ileus should be given special attention. Old calcified glands are frequently the guide to the location of the active process. The lymphomata are best removed by blunt dissection in order to prevent severe hæmorrhage from the frail mesenteric vessels. The serosa overlying the lymphoma is incised, the gland is shelled out by keeping close to its capsule, and the serosa is closed with heavy catgut sutures. Careful hæmostasis is essential to secure an uneventful post-operative course. Large, adherent pockets of glands should not be removed as a whole because there is danger of injuring the nutrient vessels to the intestine. If the tumor involves a large part of the mesentery, and resection is unavoidable, the mass may be removed in toto. Where extensive adhesions to retroperitoneal structures are present, the tumor is best removed in pieces. The more thorough the removal of the glands, the more rapid is convalescence. Even incomplete removal gives good results, as Floderus has shown. It is perfectly safe to leave in place some of the smaller outlying lymphomata, when the glands are distributed over a large area. Pus cavities should be freely exposed and their contents wiped out. The abscess wall need not be extirpated. If desired, a tampon can be left in the abscess cavity for a few days, but as a rule drainage is to be avoided.

Among complications occurring during the operation may be mentioned the bursting of the softened glands, with infection of the peritoneum or abdominal wall. Even after this accident, an undisturbed recovery may be secured if the pus is wiped out and the peritoneum closed over the cavity (Corner, Mächtle). Bier's case was complicated by an abscess of the abdominal wall. Vautrin's case had a regional recurrence. Grüneberg's case and Czerny's case died of peritonitis. Rupture of the intestine, owing to adherent masses of glands and accidental opening into the intestine, are reported by Baum, Stark, and Floderus. Dangerous hæmorrhage has occurred in several cases. These complications show the necessity of walling off the operative field with gauze packings before extirpating the lymphomata.

Enucleation without resection of the intestine should therefore be regarded as the normal operation. Forty cases have been reported in the literature. Floderus has had an experience of 7 cases. In a number of these, total removal of the glands could not be done because of their extensive distribution. In one third of these cases, appendectomy was done simultaneously. In one case a gastro-enterostomy was performed. Eight cases of the total number ran an unfavorable course. One died of post-operative hæmorrhage from a mesenteric vein.

In 5 cases sepsis, i. e. peritonitis, was the cause of death. In 2 of these the peritonitis existed before the operation. In 2 cases miliary tuberculosis developed. In another 2 cases Floderus found it necessary to perform an enterostomy because of ileus symptoms three days after the enucleation. Both of these cases resulted fatally. In the majority of the cases the end results could not be accurately foretold, because the cases were observed for only a year or more. Among later post-operative complications Floderus noted an acute exudative peritonitis two weeks after the operation, which he thought was due to rupture of one of the peritoneal sutures, with infection by tubercle bacilli. In another case of Floderus, free fluid was present three weeks after the operation. Both cases recovered. Intestinal disturbances are rather frequent during convalescence. Some resistance at the site of the tumor remains for a variable period. Some recurrences are rare. Vautrin describes a recurrence seven months after the first operation. Floderus records a recurrence after two and one half years, necessitating extensive resection of the ileo-cæcum and ileum, with recovery.

Eight cases of resection of the intestine are reported (Baum, Brunner, Kukula, Mächtle, Michaux, Sherman, Thiemann, and Vautrin). Floderus has performed resection plus enucleation five times, without any mortality. Usually the peripheral part of the ileum or the ileo-cæcum was removed. Baum removed part of the jejunum. The length of the resected piece of gut varied from 8 to 237 centimeters. One case died of a pre-existing peritonitis. The remainder ran a favorable course, although the period of observation was too short to determine the final result. Kukula's case showed a recurrence three years later in the form of a large abscess. Thiemann confined himself to incision of the softened glands at the root of the mesentery. The indications for resection of the intestine were the presence of extensive adhesions, infiltration of the mesenteric vessels, larger tumor masses encircling the bowel, necrosis of the bowel wall from compression, or accidental rupture of the bowel during the operation. An end-to-end or a lateral anastomosis was done in each case.

A simple exploratory laparotomy is said to give as good results in mesenteric gland tuberculosis as in tuberculous peritonitis. Buscarlet, Vautrin, and F. Greves have reported favorable results. The number of reported cases and the clinical accounts of the same are too meagre to show any definite conclusions.

Enterostomy may be necessary if there is a diffuse peritonitis with paresis of the bowel wall, as described by Thiemann. Floderus and Beale were forced to make a secondary enterostomy because of ileus symptoms. Gastro-enterostomy was performed by Floderus in a case in which the duodenum was compressed by the tumor. A second attempt at choledocho-enterostomy by another surgeon one and one half months later, to relieve the cholemia, resulted fatally from hæmorrhage.

From his experience, Floderus concludes that the end results of radical operation are in the main satisfactory. Of the 16 cases operated upon by him, 11 were well at the time of writing. The mortality was high only in advanced cases, with complications such as ileus and peritonitis. If the diagnosis is made early, operation should not be delayed till threatening symptoms come on. If a large tumor is present, or progressive emaciation, severe abdominal pain, or repeated attacks of fever develop, the indications are present for operative interference. Ileus and peritonitis, of course, call for immediate operation. Pulmonary tuberculosis is not a contraindication in the early stages.

Floderus concludes his article by giving the case histories of over 70 cases reported in the literature, and a detailed account of 18 personal cases.

ERWIN P. ZEISLER.

McGrath: Intestinal Diverticula; Their Etiology and Pathogenesis, with a Review of 27 Cases. *Surg., Gynec. & Obst.*, 1912, xv, 429.

By Surg., Gynec. & Obst.

Diverticula occur in every division of the digestive tract, from the beginning of the œsophagus to the end of the rectum, including the vermiform appendix. They are most commonly present in the large intestine, usually in the descending portion, are generally multiple, of the false type, and frequently are associated with the appendices epiploicæ. Several etiologic factors are concerned in their formation, namely: decreased resistance of the intestinal wall; increased pressure from within the bowel; the passage of a structure through the wall, forming a locus minoris resistentiæ, along which the protrusion makes its course. In the small intestine they rarely undergo pathologic changes which are sufficient to produce symptoms. In the large bowel the diverticula are the source of pathologic processes which, in some cases, are most grave. Masses arising from diverticular infections may clinically simulate malignant tumors, and the process may result in malignancy. In a series of 27 cases, 25.9 per cent were malignant. This percentage is to be applied only to diverticula resulting in marked pathologic changes, and *not* to the occurrence of diverticula in general. The most common initial change following infection through intestinal diverticula is a chronic extramucosal inflammation — peridiverticulitis. This fact is of essential importance to the clinician in seeking symptoms during the early stages of the condition. In 26 specimens presenting peridiverticulitis, in but 5 was the mucous membrane of the diverticula extensively involved; in 19 its inflammation varied from mild to a moderate degree, and in 2 it appeared intact.

Of prognostic importance is the fact that in this series of 27 cases all presented tumefaction of the large intestine and all occurred in the so-called cancerous period of life, yet 74.1 per cent of them proved to be only inflammatory. The complications and sequelæ of these infections are manifold. Among these are ulceration, perforation, adhesions, abscess formation, fistulous communications quite commonly with the bladder, peritonitis, etc. The complexity of the resultant pathologic processes has given rise to numerous diagnoses. The condition has been mistaken for carcinoma of the large bowel, affections of the gall-bladder, liver, pancreas, and duodenum, appendicitis, pelvic peritonitis, ovarian tumor, etc. The necessity of early diagnosis and adequate treatment is obvious in the light of the possible complications, with the hazardous operative risks and the percentage of malignancy which has been noted. A knowledge of the occurrence of intestinal diverticula, the location in which infection through them produces serious trouble, the age at which they most frequently occur, together with a consideration of the course of the pathologic process resulting from infection through these pouches, should result in more and earlier diagnoses and an increasing success in treatment.

Bienvenu: Diverticulitis and Diverticular Occlusion of the Intestines (Diverticulites et occlusion intestinale diverticulaire). *Thèse de Paris*, 1912.

By Journal de Chirurgie.

This work is a compilation of studies relating to the above subject; the author reports eight additional unpublished cases.

Meckel's diverticulum, which is found in children with a frequency of 1 in 60 or 1 in 100, is very often the cause of early pathological conditions, of which intestinal occlusion is by far the most frequent. This may be produced mechanically (volvulus, invagination, or strangulation) or by inflammation (the result of an old diverticulitis).

Diverticulitis may be plastic or suppurative. In the latter case the general picture of peritonitis may be present, so that the disease deserves to be likened to appendicitis. The author describes two phases of inflammatory occlusion — the first, pseudo-appendicular; the second, occlusion. Beyond this the symptomatology of diverticulitis is ill-defined. We may assume this condition to be present when periumbilical pains are present, when there is marked swelling in the umbilical region with an associated low temperature and quickened pulse; the abdomen for a long time remains supple and only later becomes slightly rigid and tympanitic. The co-existence of another malformation, in particular a tumor or a fistula of the umbilicus, should be taken into consideration in making a diagnosis.

The treatment of occlusion due to diverticulum will vary with the case; as, simple resection of the diverticulum, resection of intestinal flexures, and the formation of artificial anus. Whenever in the course of any operation the presence of a diverticulum is discovered, it should in every case be removed. If an operation, following abdominal complaints, should prove the appendix to be in a healthy condi-

tion, it will be well to examine the last few centimeters of the ileum to look for a persistent diverticulum, which may be the cause of the complaints.

J. L. ROUX-BERGER.

Pakowski: Dermoid Cysts of the Mesentery (Les kystes dermoides du mésentère). *Arch. gén. d. Chir.*, 1912, vi, 1029. By Journal de Chirurgie.

Forty-three cases have been collected from the literature. They were located as follows: 7 in the omentum, 1 in the small omentum, 3 in the lesser peritoneal cavity, 1 in the mesocæcum, 2 in the ascending mesocolon, 5 in the transverse mesocolon, 1 in the descending mesocolon, 3 in the mesosigmoid, 8 in the neighborhood of the rectum, and 12 in the retroperitoneal space. These cysts are commoner in youth, and more frequent in females (20 out of 31). The cyst contents are sebaceous matter — hairs, teeth, nails — and in a compound cyst, bones, cartilage, and muscular and nervous tissue.

The symptoms of dermoid cysts are those of all cysts of the mesentery. For a long period the cyst may remain latent, then later there appears indefinite, vague functional disturbances and an abdominal tumor is detected. At times the onset is more dramatic: acute abdominal pain, simulating peritonitis or intestinal occlusion. When the tumor is fully developed, we see either a symmetrical or an asymmetrical swelling bulging the abdominal wall more or less, according to the volume and location. Palpation gives a rounded, globular, regular or lobulated, distended or elastic, and at times a fluctuating, mass.

The cysts are usually mobile. Immobility suggests complications. The cyst has spontaneous mobility — it moves with the position of the patient and with respiration. Percussion may give a dull note, at times modified or concealed by overlying loops of gut. The functional symptoms are few. At times there is pain, meteorism and constipation. The most frequent complications are intestinal occlusion, torsion, and suppuration of the cyst.

The diagnosis is in practice very difficult. One must exclude tumors of the great omentum, of the gall-bladder, of the sigmoid colon, of the transverse colon, of the spleen, of the female internal genitalia. If the diagnosis of cyst is made, one may hesitate as to the location of the cyst and confuse a mesenteric with a pancreatic cyst, a retroperitoneal cyst, a movable kidney, complicated by hydronephrosis. At times the X-rays may assist; for instance, the radiogram may reveal the presence of bones, of teeth.

Several surgical methods have been suggested for the treatment of these cases: simple aspiration (a blind and unsafe procedure), or marsupialization, which is simple of execution but leaves a fistula slow to heal. The method of choice is extirpation. Thirteen cases treated by extirpation gave 11 rapid recoveries.

If a cyst is pediculated, adhesions are separated, the pedicle carefully ligated, then divided. If the cyst is intramesenteric, one divides the overlying mesenteric layer by making an incision parallel to the vessels, as much as possible in an avascular zone and as far as possible from the intestinal border. The cyst is enucleated with or without preliminary evacuation of its contents. J. DUMONT.

GASTRO-INTESTINAL TRACT

Schutz: Gastric and Duodenal Ulcer. *Wien. klin. Wchnschr.*, 1912, xli. By Surg., Gynec. & Obst.

Schutz examined a great many cases of gastric and duodenal ulcer, in his clinic in Vienna. He reviews the present conceptions of these diseases. Payr's experimental results of producing ulcers by formalin injections in animals cannot be regarded as of etiologic significance in the human. Of more interest is Schmidt's and Heyrovsky's discovery that islands of pavement epithelium in some stomachs, when damaged by the hydrochloric acid, resist less than the normal lining and thus ulcers are formed. Hypersecretion, formerly regarded as a neurosis, is seen by him more frequently as a symptom of gastric ulcer. Pain may be pathognomonic, particularly the localized pain; and herein he agrees with most observers. Occult blood is more characteristic for carcinoma than plain ulcer. The Röntgen diagnosis, particularly the Haudeck symptom of a small bubble-like appendix to the regular shadow, is of great value.

Gastro-enterostomy is his choice, but he says some words in praise of von Eiselsberg's method of pyloric exclusion. In regard to duodenal ulcer, Schutz confesses less experience, and points to the progress of English and American surgeons. CARL BECK.

Ransohoff: The Operative Treatment of Gastro-Enteroptosis. *Boston M. & S. J.* 1912, clxvii, 347. By Surg., Gynec. & Obst.

The author calls attention to the overshadowing feature of some congenital variation from the normal embryonic process of parietal fixation of the intestinal tube in the causation of gastro-enteroptosis. He believes the most important of these to be the insufficient fixation of the cæcum and lower part of the ascending colon. The fact that a mobile cæcum is often found without symptoms, the author considers of no value. In the cæcum bacterial activity reaches its climax, and in the event of inadequate or delayed drainage the symptoms of autointoxication become pronounced, and neurasthenia in some of its many forms crowns the process. It is so often here that the Jackson membrane is found, which the writer believes to be the result of a low form of long standing infection. These cases as a rule show the history of constipation from childhood.

In easy appendix operations where the cæcum is mobile and dilated, the author fixes the cæcum by one or two lateral sutures after reducing it in size by cæcoplication.

For prolapse of the midcolon the author performs colopexy after a modified Coffey fixation. To insure a lasting result, the perineum of the anterior abdominal wall is divided along the line of proposed fixation and the fascia exposed from within. Into these denuded spaces the omentum is fixed by interrupted or continuous sutures.

The cause of coloptosis, the author believes to be the high and firm fixation of the splenic flexure, when a valve-like constriction separates the nearly always full part of the proximal end from the empty distal segment. The latter is in reality intended only for the passage of the fæces. The author often supplements the colopexy with reefing of the mesocolon. He does not believe that exclusion operations, particularly that of Lane, are indicated save in extreme cases.

In regard to gastroptosis, the author believes that its importance has lately been lost sight of by reason of the extensive cultivation now practiced in the field of coloptosis. He believes that in not a few cases a prolapsed stomach is etiologically more important than the sagging of the colon which may result from it.

For dilatation he resorts to gastroplication. The author does not believe that any gastroptotic patient should be operated on except for some actual functional disturbance, the relief of which must be the aim of the operation. In many seemingly hopeless cases of gastro-enteroptosis, with marked nervous symptoms, the operation promises relief. If this is the result of suggestion, it is none the less valuable if the relief is permanent.

Rammstedt: Operative Treatment of Congenital Stenosis of the Pylorus. *Med. Klin.*, 1912, viii, 1402. By Surg., Gynec. & Obst.

The author reports two cases of this type upon which he operated. He prefers splitting the pylorus without incision of the mucous membrane, followed either by transverse suture of the longitudinal incision, or, as he did with his second case, by no suture at all.

Case 1. Male child, normal during first five weeks of life; after that, vomiting, frequent pains, constipation for two weeks, internal pain during that time, and for one week more in hospital. No improvement; constant loss of weight and vomiting. *Operation.* Incision 6 cm. long. Pylorus cartilaginous and as thick as the little finger, 2 cm. in length. It was difficult to bring pylorus out of the wound. Small intestine quite atrophic. Longitudinal splitting of pylorus with transverse suture. Recovery was retarded by frequent attacks of vomiting, which kept up for 10 days. After that, steady improvement.

Case 2. Three children in this family had been affected with vomiting soon after birth. The first, a girl, recovered after five months and is now well. The second child, a boy, died after four months of vomiting. The third, also a boy, presented similar symptoms and died in convulsions at the age of four months. Autopsy showed a typical hypertrophic stenosis of the pylorus. The fourth child, a boy, was normal for the first ten days after birth. From then on mixed feeding was administered, because of scarcity of mother's milk. This change of food was followed by vomiting, scant stools, and decrease in weight. Twelve days later operation was performed. The pylorus showed the same changes as in Case 1. The stenosis was incised. The incision gaped strongly; the mucous membrane presented 1-2 mm. in width, but did not bulge. The pyloric incision was left open. Recovery uneventful; no further vomiting.

Discussion of the various operative procedures employed so far in the treatment of pyloric stenosis follows: (1) Jejunostomy was employed by Cordua, with fatal results. (2) Pyloric resection was performed, with death following. The great tension upon the duodenum makes delivery almost impossible. (3) Divulsion is the operation of choice, according to Loreta. It is a brutal maneuver, which is not surgical. (4) Gastro-enterostomy is followed by a mortality of 49 per cent in 135 cases, as collected by Scudder. Scudder's success in eight consecutive cases of posterior gastro-enterostomy without a fatality makes it evident that the skill of the individual operator plays an important part. (5) Pyloroplasty: in 1908, 21 cases were collected with a mortality of 57 per cent. A small incision is sufficient. Failures are due probably to plication of the mucous membrane after transverse suture. Transverse suture through the longitudinally incised muscle is difficult. Weber recommended partial pyloroplasty while leaving the mucous membrane intact. (6) A combined operation of pyloroplasty and divulsion was devised by Nicoll. A V-shaped incision was made in the transverse axis of the pylorus, and this was sutured in a Y form, after divulsion, through a small incision in the stomach. The mucous membrane was left intact. Six cases were reported, with five recoveries. Rammstedt enumerates the objections which may be made against the method practiced in Case 2. Fear of possible gangrene of the exposed mucous membrane is unfounded. The exposed portion of mucous membrane is too small. Omentoplasty might be done to protect against possible perforation. He does not think recurrence possible by a reunion of the cut edges. The defect probably will be filled by connective tissue. After treatment is of great importance, as the small intestine is usually atrophic and not accustomed to large amounts of food. Feeding must be done under expert direction, as otherwise the good results of the operation might be frustrated. E. C. Riebel.

Gouilloud: Some Cases of Pylorectomy with Resection of the Transverse Colon (Quelques cas de pylorectomie avec résection du colon transverse). 26th Cong. de l' Ass. fran. de Chir., Paris, Oct. 9, 1912. By Journal de Chirurgie.

Gouilloud presents five patients in whom it had been necessary to resect simultaneously a portion of the stomach and of the transverse colon.

The first, a woman of 35 years, had a tumor of 10 kg. (900 gr.). The tumor (a leiomyoma or myosarcoma) had its point of origin in the muscular layer of the fundus. The spleen was located upon the lateral face of the tumor, and was removed with it. The patient suffered neither from shock nor from peritonitis; but she had fever, which was attributed to the slipping of an intestinal forceps and the escape of stomach mucus over the field of operation. On the eighth day pneumonia appeared, to which the patient succumbed.

The second patient, also 35 years old, was a woman affected with an encephaloid cancer of the greater curvature, which had invaded the gastrocolic mesentery but remained movable. She was doing well ten months after.

The third, a woman 62 years of age, was operated for a bulky tumor which was recognized to be of an inflammatory nature. It was formed of a thick shell, enclosing a sanious cavity which communicated with the gastric cavity by means of a perforated ulcer. The patient was doing well 15 months after.

The other two cases were colectomies for cancer of the colon adhering to the prepyloric region.

One of them, operated the first time by colectomy, returned with a movable and operable recurrence. The patient was getting along well three years after the first operation and nine months after the second.

The other patient was operated for a cancer of the transverse colon, which adhered to the stomach. The trouble has not recurred for more than ten years.

In conclusion resection of a portion of the transverse colon but very slightly aggravates the mortality of a pylorectomy.

These complex operations should not be considered futile attempts; they may be followed by lasting results.

The anatomical relations of these two viscera explain the readiness with which they are invaded in common.

Neoplastic involvement is also likely where the middle portion of the colon adheres and occlusion is to be feared, so that the adhering organ must be resected.

It is best to determine, before attempting any removal, the extent of the involvement, and if the colon is implicated, to resect en bloc the area of which the tumor forms the center.

Blad: Chronic Duodenal Ulcer and Its Operative Treatment. *Arch. f. klin. Chir.*, 1912, xcix, 413. By Surg., Gynec. & Obst.

Report and analysis of 32 cases of chronic duodenal ulcers, from the clinic of Prof. Th. Rövsing. The observation of the cases has been very exact, supplemented by laboratory and X-ray examinations. Blad pleads for a sharper distinction between duodenal and pyloric ulcer. The majority of duodenal ulcers is near the pylorus, but not infrequently ulcers are found lower down which may give rise to complicating affections of the biliary passages and the pancreas. Contrary to the tendency of assuming appendicitis or gynecological affections as causes of duodenal and gastric ulcer, Blad emphasizes that the majority of patients observed had been entirely free from any disease before outset of ulcer symptoms. Examinations during operation were carried on with great precision, and in most cases augmented by gastro-duodenoscopy with Rövsing's gastroscope. In quite a number of cases cicatricial changes of the wall of the duodenum did not correspond with the seat of the ulcer. The use of the pyloric vein as a landmark for the ulcer, as practiced by Moynihan and Mayo, has not been practiced. He confirms the presence of hunger pain (Moynihan) to be a highly suggestive symptom of duodenal ulcer. X-ray findings have changed the explanation of pain two or three hours after meals. The pylorus normally closes when acid gastric contents touch the duodenal wall, and remains closed until complete neutralization has taken place. In the beginning, when the gastric contents are slightly acid, neutralization is accomplished within a short time. During this phase, the pylorus generally relaxes and permits renewed passage of food, as confirmed by X-ray findings. Gradually, with increasing acidity of gastric contents, the normal reflex becomes more pronounced and the pylorus remains closed for a longer period. This is increased by the irritation of the ulcer by the acid contents. Continuous contractions of the pyloric end of the stomach take place to evacuate this, and these cause the pain. As long as the antrum contains anything these pains continue. Renewed taking of food or of alkalis neutralizes the acid, the pylorus relaxes, passage of gastric contents is possible, and the pain ceases. Nightly pains were caused in many cases by more or less pronounced motor insufficiency of the stomach. In a smaller number of cases, adhesions produced these pains. In over half the cases, the pain was on the right side, usually of the epigastrium and along the curvature; in some, complications of pain beneath the right scapula or in the lumbar region and right iliac region. One case showed marked influence of pain by posture. While standing, this was continuous, irrespective of food, and ceased on lying down. Operation revealed that the round ligament of the liver was broadly adherent to the convexity of the duodenum, due to an old local peritonitis; the ligament covered a perforated ulcer.

Hæmorrhage. Hæmatemesis or melæna occurred 14 times. In 4 cases, occult hæmorrhage was demonstrated by examination of the fæces. Blad advises to conduct these examinations during a time when bleeding is likely to occur, as after unusual exertions or after an error in diet. He finds antagonism between pain and hæmorrhage. In the latter cases there often is little or no pain. All ulcers causing marked hæmorrhage were found in the concavity of the duodenum. The most dangerous hæmorrhage often results from ulcers which show little or no inflammatory reaction. Icterus was present in two cases, explained by the location of

ulcer near the papilla. One case had a complicating cholecystitis. Clinical signs of pancreas affection were noted in two cases. Blad finds that glycosuria and decreased sugar toleration should remind one of the possibility of ulcer of the duodenum. Sensitiveness to pressure occurred in 15 cases, where it was right sided; some patients showed pronounced defense over the right rectus. Nine times tenderness on pressure was found over the gall-bladder region and twice along the left curvature. Examinations after test meal showed that absence of free hydrochloric acid may be associated with ulcer of the duodenum. Hypersecretion was found in about one half of the cases. Operation disclosed in 25 cases an open ulcer despite the long duration. Chronic perforation was discovered in 5 cases. In 2 cases the ulcer was not found during operation, but discovered later at the autopsy. Twenty-two cases were treated by anterior gastro-enterostomy, with subsequent entero-anastomosis, except two, owing to weakness of patients. Resection of various kinds was practiced nine times. In two cases, where the ulcer was so near the papilla that extirpation was not possible, the pylorus was resected and invaginated into the duodenum. Gastric and duodenal end was closed, and an anterior gastro-enterostomy with entero-anastomosis done. He finds that simple gastro-enterostomy is good only in cases where danger of perforation or hæmorrhage is passed. One patient succumbed to renewed hæmorrhage seven days after simple gastro-enterostomy; 2 patients had grave hæmorrhages two or three years after operation. If repeated hæmorrhages have taken place and the ulcer is situated in the concavity of the duodenum near the great vessels, gastro-enterostomy in unreliable, and a more radical operation should be performed. E. C. Riebel.

Koch and Cerum: Intussusception in Children; 400 cases. *Edinb. M. J.*, 1912, ix, 227.
By Surg., Gynec. & Obst.

The authors recommend the bloodless method of treatment, giving statistics showing that they are able to obtain better results in children under one year. The operative method is recommended for children over one year of age, as they are better able to withstand an operation. The advantages of the bloodless method are its availability in general practice and the relative safety in tender childhood. The disadvantages are incomplete disinvagination, perforation, and tendency to relapse. In the bloodless method they employ taxis and the introduction of large amounts of water under deep anæsthesia. The technique is simple.

The cases reported have been observed in a period of 19 years. Sixty per cent occurred in the first year, of which two thirds were in the fifth to seventh month. During the second year of life no more cases occurred than did in the fifth and sixth month. The most common form of intussusception is the ileo-cæcal. It was found in 81 per cent of cases under one year and 66 per cent over one year. The predisposing factors were found to be ascarides, polypi, Meckel's diverticulum, castor oil indiscriminately given, causing strong and irregular peristalsis, and diarrhœa. The latter seems to play an important part, as most cases occurred during the fifth to seventh month, just at the time when the child is started on artificial food.

The authors lay stress on four cardinal symptoms: pain typically colic in type; vomiting, usually occurring early; blood-stained mucus per rectum, appearing about six hours after onset; and tumor mass. The blood-stained mucus may be absent in small intestine intussusception. The tumor mass is found in the upper left quadrant of the abdomen. It can be felt in the rectum in 40 per cent of the cases. All patients should be examined under deep anæsthesia. Meteorism is considered an unfavorable sign. No rise in temperature was noted during the first two days of the illness.

Edward L. Cornell.

Lenormant: A New Extraperitoneal Method of Closing an Artificial Anus or Fistula of the Intestine (Sur un nouveau procédé extrapéritoneal de fermeture de l'anus artificiel sans éperon et des fistules labiées de l'intestin). *Bull. et mém. Soc. d. Chir.*, 1912, xxxviii, 1167. By Journal de Chirurgie.

This method consists essentially in a combination of classical procedures for reducing an artificial anus by passing a loop of catgut about the gut. It comprises the following steps:

1. A short incision of 5 or 6 mm. is made within 2 or 3 cm. of the artificial anus, and reaching as far as the aponeurotic muscle. Through this incision a No. 2 catgut suture is passed around the opening. It ends within 2 to 3 cm. of the orifice and within the wall of the aponeurotic muscle. The catgut, with its two ends caught in a forceps as they pass out through the incision, is not yet tightened.

2. The edges of the anus are freshened by folding back the mucous membrane of the gut if possible to a distance of 10 to 12 mm.

3. Union is made by bringing the mucous lips of the orifice together by means of a fine catgut thread; where these separate, a whip-stitch suture is put in.

4. Now take up the suture which forms the loop, draw it together and tie. All the layers of the gut will purse out about the orifice, which is thus closed. The ends of the thread are cut even with the knot and the latter buried under the suture, which closes the lateral incision.

5. Suture the cutaneous lips of the artificial anus.

Lenormant has employed this procedure in six patients: 4 times for a cæcal anus (3 of these cases were subjects on whom he had previously performed cæcostomy for obstruction; the fourth was in a case of cancer of the sigmoid flexure which had been removed by enterectomy, the cæcal anus also being removed for the sake of safety); once he employed it for an iliac anus, and once for a large labiated stercoral fistula, following a complex operation for appendicitis.

In these cases he has 4 times (2 cases of cæcal anus, 1 iliac anus, and the stercoral fistula) obtained primary union and complete and definite closure of the anus or fistula within the course of eight days. In the other two patients a very small punctiform fistula remained, which now and then let escape a few drops of liquid matter. The fistulæ were closed by cauterization.

To sum up, we have here a procedure which very often is efficacious and so simple that it deserves to be tried in all cases of artificial anus without spur. If closure is not obtained, one is still free to perform the intraperitoneal operation.

Robineau has had occasion, in a number of instances, to employ a procedure which is analogous to that described by Lenormant, and nearly always with success. He does not even make an incision for placing the constricting thread, so that when the thread is tightened, it is buried in the passage made by the needle. Moreover, he uses horsehair in place of catgut, which is very rapidly absorbed. In the majority of cases Robineau has been able to perform this little operation without even having recourse to local anæsthesia. J. DUMONT.

Boekel: Resection of Two Meters of Intestine (Ileum, Cæcum and Ascending Colon) in a Form of Appendicitis Not Yet Described (Résection de deux mètres d'intestin (ileon, cecum et colon ascendant) dans une forme d'appendicite non encore décritée). *Bull. de l'Acad. de Méd.*, lxviii, 241. By Journal de Chirurgie.

There is a process which Boekel has not seen described, where there is an adhesion of the terminal extremity of the infected appendix to the anterior layer of the mesentery near the point of its origin. The appendix is perforated and a suppurating focus forms between the two layers of the mesentery. This focus, though limited in the beginning, may acquire such dimensions that it may have the appearance of a true tumor.

Boekel observed a patient in whom this condition had begun eight days before with violent pains in the lower abdomen and fever as high as 39°. Palpation between the umbilicus and the anterior superior iliac spines revealed the presence of a tumor the size of a small fœtal head, smooth, only slightly movable, painful and relatively superficial. Boekel thought that it might be an empyema of the gall-bladder or appendicitis.

At operation, he found on the right side an enormous bundle of intestinal adhesions, all agglutinated and forming with the cæcum and the ascending colon a compact and almost unrecognizable mass covered over with thick adhesions; orientation in this mass was impossible. In attempting to disengage the cæcum the index finger made a rent in an enormous pocket, from which there escaped a flood of from 400 to 500 cc. of fœtid pus. This pocket extended upwards toward the vertebral column. Another pocket extended downward to Douglas's pouch.

In order that he might not prolong the exploration unnecessarily and that he might extirpate the secondary foci which were certain to be found more deeply, Boekel decided to resect two meters of intestine (80 centimeters of the ileum and 90 centimeters of the cæcum and ascending colon, as far as the hepatic flexure of the colon).

An ileocolic lateral anastomosis, with a Murphy button, re-established the continuity of the digestive tract.

Dissection of the specimen enabled Boekel to find a close adhesion of the terminal extremity of the appendix to the anterior layer of the mesentery and to discover that the appendix was perforated and communicated directly with an enormous cavity which had been hollowed out between the two layers of the mesentery.

A second laparotomy was performed in the month of August to extract the Murphy button, which had not come away, and to suture a persistent stercoral fistula. CHIFOLIAU.

Satterlee: Mobile-Dilated Cæcum, Diagnosis and Treatment; with Case Reports. *Am. J. Gastro-Enterol.*, 1912, ii, 1. By Surg., Gynec. & Obst.

The author reports a number of cases of "mobile-dilated cæcum." He states that the diagnosis of these often obscure cases is difficult without the X-ray. This condition has usually been wrongly diagnosed as appendicitis, which may coexist but is not the chief source of the trouble.

The principal symptoms and signs of this condition are pain and tenderness and a varying amount of distention in the region of the cæcum. Radiographs show a much dilated cæcum, which contains the bismuth after it has passed into the ascending colon, often after two or three days. The principal points in this condition are dilatation and atony; mobility may or may not be present, and ptosis depends upon the position of the rest of the colon. The diagnosis belongs to internal medicine, and the treatment, in a large majority of cases, is medical. Massage and vibration of the colon, especially over the cæcum, hygiene and diet for constipation with the omission of cathartics and laxatives, and abdominal support with colon pads for ptosis if it exists, are the principal means. If medical treatment does not relieve, operation is indicated. Plication of the cæcum, with or without fixation, and fixation of the colon if marked ptosis is present, have given good results in his cases.

Appendectomy is often indicated, but is only part of the operation. In every case there is the necessity of studying the whole gastro-intestinal tract by means of serial radiographs and the bismuth test, besides the ordinary chemical and mechanical methods. The cases should always be followed up carefully by medical treatment.

Flint: Embryonic Bands and Membranes About the Cæcum. *Bull. Johns Hopkins Hosp.*, 1912, xxiii, 302. By Surg., Gynec. & Obst.

In any large series of cases, the fine vascularized membranes found upon the ascending colon or cæ-

cum, known as Jackson's veils or membranous pericolitis, may be simply divided into three types. The commonest group is that where the veil extends from the parietal peritoneum along the lateral margin of the colon, particularly near the hepatic flexure over into the lateral and ventral aspects of the colon and cæcum. Often the caput of the cæcum is free, but they may extend downwards not only to the caput but even to cover the proximal portion and sometimes the entire appendix as well. Another type occurs lower down, and extends from relatively the same part of the parietal peritoneum out into the head of the cæcum and usually covers the proximal half and more rarely the entire appendix as well. Veils of this description do not as a rule extend high up on the ascending colon. The third form, which is relatively rare, passes over from the ventral aspect of the colon and is continuous with or apparently adherent to the omentum. In some cases it may extend from the parietal peritoneum on the lateral wall of the abdomen over the ascending colon, and then becomes continuous with the omentum, often holding the ascending and first part of the transverse colon side by side, with a sharp angulation at the hepatic flexure if the latter happens to be long and looped. Veils of this type may be associated with such malformations as a non-rotated cæcum.

The etiology of these veils has been supposed to be due to an inflammatory process originating in the colon or adjacent structure, while as a matter of fact they are congenital. They originate after the rotation of the gut from the secondary fusions of the peritoneum, when the cæcum becomes attached to the posterior abdominal wall just over the kidney and under the liver. In some instances, these attachments, usually confined to the posterior aspect of the cæcum and colon, are excessive and extend out over the ventral surface of the first part of the large intestine, resulting, with the subsequent descent of the cæcum, in their being drawn out in the form of a thin veil or membrane. In this process the blood-vessels take part, a fact which explains the long, unbranching course from their origin on the parietal peritoneum, downward and forward into the cæcum or colon, where they communicate with those of the intestinal wall. Here the secondary union between the two layers of the peritoneum usually spares the cæcum and extends on to the colon, and gives rise to the commoner form of membrane. Occasionally the cæcum, and even the proximal portion of the appendix — or, still more rarely, the entire appendix — is covered. In such cases, we have the extensive veils which embrace the entire first portion of the large intestine, with the appendix drawn up in the process of descent. In still other instances, the attachments are confined to the region of the cæcum and appendix and thus give rise to the type of veil that covers the caput cæci and its appendage.

As these are variable in the form of the secondary attachments between the colon and peritoneum, so also does the extent of the fusion between the part of the posterior mesogastrium which gives rise to the omentum vary within any considerable limits. Sometimes the embryonic omentum reaches out laterally and fuses with the cæcum before the descent, and not uncommonly extends into the parietal peritoneum. When such a secondary fusion takes place, the cæcum in its descent drags down the omentum with it and gives rise to that form of membrane which is continuous with the omentum along the medial aspect of the ascending colon.

The great majority of these pericolic membranes are not responsible for any symptoms, and represent simply decided variations in the normal attachment of the first portion of the large intestine. Occasionally, when they are extensive or badly placed from a mechanical point of view, they may cause obstruction, especially if any degree of ptosis is present. It is not impossible that they may have thickened as a result of chronic colitis, but in themselves are of inflammatory origin. Like Lane's band, the symptoms resemble chronic appendicitis, without a preceding history of an acute attack. There may also be reflex and gastric disturbance. The treatment for most cases is to let them alone, for they are normal but variable strictures. For instance where there is evidence of definite obstruction or constriction of the colon, the membranes should be incised along the lateral margin of the colon. In no case should they be stripped, for this proceeding denudes the colon of some of its normal peritoneum.

The formation of Lane's band on the terminal ileum is due to a process similar to that which gives rise to pericolic membranes. After the rotation of the gut, the terminal ileum ordinarily retains its free mesentery. In a number of instances, the process of secondary between fusion the cæcum and the parietal peritoneum extends out for a short distance from the cæcum or colon and involves the terminal ileum, resulting in either a partial or total obliteration of the posterior leaf of its mesentery, which thus requires an attachment to the parietal peritoneum itself. With the descent of the cæcum this fusion may cause the ileum to grow on itself and become kinked.

The majority of Lane's bands do not cause symptoms, but some, especially when associated with ptosis, undoubtedly give rise to a symptom-complex similar to that we have come to associate with chronic appendicitis.

Another embryonic stricture is sometimes found on the gall-bladder, which consists of an omentum mesentery which may reach to the fundus and extend across the transverse colon, when it becomes continuous with the omentum. These peritoneal folds ordinarily do not cause symptoms; but under unusual circumstances, such as loosening of the supports of the colon, may exert a traction in the gall-bladder, which relieves its characteristic pain. They are probably due to the fundus and its developments picking up a fold of the posterior mesogastrium in the formation of the greater omentum.

Green: Some Points in Connection with Appendicitis in Children. *Practitioner*, 1912, lxxxix, 508. By Surg., Gynec. & Obst.

Appendicitis is the most common of the surgical diseases of the abdomen in children. Most cases occur after five years of age; it is rare under two.

The author regards the appendix as a lymphoid structure and therefore an important abdominal organ. Among the interesting causes he mentions threadworms, three cases of which he reports. Of the symptoms, abdominal pain is practically always present, but may be referred to remote regions. In a case to which he refers, the pain was in Scarpa's triangle on the right side. He mentions one case in which severe melæna was present. The diagnosis is not at all easy, and in differentiating we must keep in mind pneumonia, acute gastritis, intussusception, intestinal obstruction, and typhoid fever. In girls, sometimes diseases of the right ovary may confuse. If melæna is present, one must think of Henoch's purpura.

The mortality in children is always graver than that in adults. There is very little difference in treatment from that of adults. C. G. Grulee.

Stiven: Acute Appendicitis in Children. *Practitioner*, 1912, lxxxix, 527. By Surg., Gynec. & Obst.

In ten years, there were 4,000 cases of appendicitis at the London Hospital. Up to the age of twelve there were, on an average, 83 cases a year; up to seven years old, 20 cases; up to five years old, 6 or 7 cases. The details of the series taken, 208 in all, are:

Age	Number of Cases
2	6
3	7
4	21
5	46
6	63
7	65

Eleven of these had had one previous attack and three had had a previous operation. Seven cases had had three previous attacks, and two cases, four.

The sex in these children was two males to one female, the same as in the adult. Most of the children's cases occurred in the months of May, August, and September.

Fæcal concretions were present in 23 cases, or 11 per cent. Of 208 cases up to seven years of age, there were perforation or gangrene in 31.2 per cent and general peritonitis in 25 per cent. In 14 cases operated upon before complications occurred, the average stay in the hospital was twenty-seven days, and there were no deaths. The average mortality in the series was 41.8 per cent.

Localization of suppuration is not so common as in the adult. Skill and speed in the operator are most desirable.

The Fowler position after operation lowers the mortality. In children, continued saline enema is a failure. The children cannot bear starvation, and should be fed such things as albumen water and perhaps a decoction of crushed raisins. Early catharsis is advisable.

Twelve per cent of these cases showed complications, which in nine cases proved fatal. The complications consisted of paralytic obstruction, pneumonia, secondary abscess, empyema, etc.

The author sums up the difference between adults and children as follows:

"Owing to their greater liability to a generalization of the infection, early operation is more imperative in children. It will be seen from the figures given above that the odds are three to two on the generalization of the infection arising; whereas, if they are operated on within twenty-four hours, the mortality, for this series at least, is nothing per cent.

"A prolonged operation and undue exposure cause relatively greater risks.

"In the after treatment, certain special methods of treatment will make all the difference between success and failure." C. G. Grulee.

Abrami, Brissaud, and Weissenbach: Hæmatogenous Origin of Certain Forms of Acute Appendicitis (Origine hematogène de certaines appendicites aiguës). *Bull. de l'Acad. de Méd.*, 1912, lxviii, 280. By Journal de Chirurgie.

A patient 45 years of age entered the Hôpital Cochin on May 17, 1912, and typhoid fever was diagnosed. The trouble had begun on May 3d, rather suddenly, with disturbances of digestion, fever, headache, and a copious diarrhœa. During the days following, these symptoms became worse. On the day of arrival at the hospital the patient presented all the signs of typhoid fever; the temperature held at about 40° C., and there was prostration, sub-delirium, copious serous diarrhœa, and a confluent eruption of pink lenticular patches. The laboratory examination proved septicæmia; serodiagnosis was negative with Eberth's bacillus, but positive at 1:5000 dilution with the paratyphoid bacillus, and blood culture at two different times isolated the bacillus from the blood.

May 19th the general state of the patient suddenly became worse; stool was suppressed, the abdomen was very distended and presented a generalized muscular defense, and the pulse became very poor. In the middle of the night the patient succumbed in a state of coma, after having previously vomited greenish matter.

At the autopsy the small intestine was found to be in a state of perfect health, and there was not the slightest tumefaction of Peyer's patches or any of the other lymphoid organs. All the lesions were located in the appendix and in the cæcum. The appendix was tumefied and soft; it also presented two necrotic patches, one of which had proved the cause of the fatal peritonitis. There was one patch on the cæcum, at the point of juncture of the ileocæcal valve, and the rest of the organ was spotted everywhere with ecchymotic lenticular patches. In all these lesions the paratyphoid bacillus was found

in very large numbers and in an almost pure state of culture.

The histological examination enabled the authors to establish the fact that the cæcal walls had been infected by way of the blood. The ecchymotic patches on the cæcum were made up of a nodular infiltrate, which was clearly submucous and perivascular; this infiltrate was covered with numerous dilated capillaries, the openings of which at certain points were obstructed by colonies of bacilli presenting the form and staining reactions of the paratyphoid bacillus.

The history of hæmatogenous appendicitis has been built up on the anatomical and experimental data of the clinic. All that was lacking to complete the theory of the hæmatogenous origin of appendicitis was corroboration by blood culture. The case here described brings that decisive proof. If we believe that early and systematic blood culture will prove positive most frequently in those forms which early in their development are accompanied by grave general phenomena, that is, in those that begin in the manner of a general infection; in a large measure, no doubt, the extra-intestinal manifestations which frequently form a prelude to the breaking out of symptoms of appendicitis arise from septicæmia.

In two benign cases of acute appendicitis in which diagnosis was confirmed by the operation, the blood culture remained negative. CHIFOLIAU.

Hausmann: Palpation of Gastric Intestinal Tract (Die topographische Gleit und Tiefenpalpation und ihre klinische Bedeutung). *Med. Klin.*, 1912, viii, No. 42. By Surg., Gynec. & Obst

Hausmann has shown that, with exception of the portion adjacent to the ileum, no part of the ileum is palpable. Knowledge of this fact makes recognition of palpated parts easier. Mere pressure or boring motions of the tips of the fingers are insufficient. Instead, rectilinear sliding motions, transversely to the axis of the part, are to be employed. The ends of the various portions of the gastro-intestinal tube are fixed. The intervening parts are more or less movable and may evade the gliding motions, but if these motions have a sufficient amplitude the respective part may be fixed finally. In case the part recedes towards the posterior abdominal wall, or is very deeply situated, deep palpation must be used. The finger-tips gradually sink to a greater depth. This progression, as well as the gliding movements, are carried out respectively at the end of expiration or during the respiratory pause. During these phases the abdominal walls are relaxed. The patient should be instructed to breathe deeply with mouth open. By observing these instructions one will avoid tension of the abdominal muscles. Posture should be arranged so that all the muscles are relaxed as much as possible. To avoid fatigue of the palpating right hand, the left is laid upon this and pressure made with the left. Deep palpation may be made easier by pressure from behind (lumbar region). The distance between the anterior and posterior abdominal wall in the psoas region is decreased by active contraction of the psoas muscle, i. e., by flexion of the hip, with leg extended at the knee joint. Structures situated upon the belly of the psoas — transverse colon, ileo-cæcal region, appendix, sigmoid flexure — may easily be palpated. The palpation is topographical, not dependent upon the expected location of the structure in an accepted region. One determines in case of tumor if it belongs to a palpable portion of the gastro-intestinal tract, and if not, what relation it has to the various palpable portions. The relation of exudates and painful areas may be determined in the same manner. Topographical gliding and deep palpation in chronic appendicitis is more reliable than McBurney's point. The appendix, if fixed by adhesions or by its mesentery, may be palpated upon the psoas muscle. To differentiate the appendix from the cæcal portion of the ileum, it is important to bear in mind the absence of gurgling sound and the lack of change in volume and consistency over the appendix. The ileo-cæcal portion has to be palpated before attempting to locate the appendix. Isolated pain sensation produced by pressure upon the psoas is very important. If the psoas pain is bilateral it is often not significant; unilateral psoas pain indicates organic disease. In pyelitis, nephrolithiasis, floating kidney, and cholecystitis, the upper portions of the psoas are more painful; in appendicitis, cæcum mobile, and sigmoiditis, the lower portion. He speaks of contraction of the stomach and when it may be recognized — by pylorospasmus, gastrospasmus, or gastrostasis. Local accumulations of fæces are frequent in the cæcum and sigmoid flexure, also in the right portion of the transverse colon. If these accumulations are met with persistently, one may assume it to be due to pathological obstipation. In other cases of obstipation the colon may be entirely empty, as may also the ampulla of the rectum. This may be due to increased absorption in the colon (Schmidt), or more likely to atony of the small intestine (Schwartz), with delayed evacuation into the cæcum. The colon may be in a state of spastic contraction of the thickness of a lead pencil. Hausmann, however, does not take this as proof of the existence of so-called spastic obstipation. He recommends the same maneuvers for massage of the colon (palpatory massage). E. C. RIEBEL.

Dowd: Acute Phlegmonous Inflammation of the Large Intestine. *Ann. Surg.*, Phila., 1912, lvi, 579. By Surg., Gynec. & Obst.

The writer presented to the New York Surgical Society a man 23 years of age, who had suffered from an extensive phlegmonous inflammation of the greater part of the descending colon. During the past year he had had occasional attacks of pain in his left side. The pain became severe two and one half days before admission to the hospital and for the past 24 hours had been extreme, and had been

accompanied by bloody stools; just before admission to the hospital he had passed a large amount of blood by the rectum. He was much prostrated, complained of great pain, and had muscle spasm on the left side of abdomen; pulse 92, temperature 98°. Through an incision it was seen that the descending colon, from splenic flexure to sigmoid, was intensely indurated, red, and rigid. An anastomosis was made between the middle of the transverse colon and the sigmoid, and the intervening portion of the colon was removed. The patient made an excellent recovery. The excised portion of intestine showed acute suppurative inflammation of the intestinal wall, with numerous groups of gram-positive cocci in the submucosa.

The author had not found a similar case reported, although there are references to a "fatal and obscure form of necrotic colitis which appears to be septic in character." Phlegmonous inflammation of the wall of the stomach has been described many times. The port of entry has usually been a gastric ulcer; 98 per cent of the reported cases have been fatal.

It is believed that this phlegmon of the colon corresponded to the cases of phlegmon of the stomach, an abrasion by fæcal masses, or a diverticulitis providing a place for the entry of the infective cocci. The condition of the blood-vessels showed that it was not a mesenteric thrombosis.

Vianney: Nine Cases of Partial Resection of the Colon for Cancer, Five of Which Were Performed at One Time (Neuf cas de résection partielle du colon pour cancer, dont cinq et un temps). 26th Cong. l'Ass. fran. de Chir., Paris, Oct. 9, 1912. By Journal de Chirurgie.

Vianney offers the following statistics on the resection of the large intestine for cancer.

The resection occurred at the following locations: once at the right flexure, once in the transverse colon, once in the left flexure, three times in the descending colon, and three times in the pelvic colon. In four instances the resection was performed in different stages, with two deaths resulting; five times colectomy was done in one stage, and *these five patients have recovered.*

The author uses these five cases which have resulted in recovery to affirm that colectomy in one stage represents the operation of choice in the treatment of cancer of the colon whenever the tumor has not become complicated with an acute or chronic intestinal obstruction. Only in these complicated cases, and also in cachectic patients, must the operation be performed in two or three stages (the method which not so long ago was considered the method of choice).

The technique comprises the following essential points: laparotomy, free excision of the tumor, immediate enterorrhaphy, and closing the stomach without drainage.

Enterorrhaphy is made with silk in two layers and should by preference be end-to-end. In case of too great an inequality in the caliber of the two ends, or in case of extreme shortness of one of the segments, lateral anastomosis, after closing the two ends, or termino-lateral, after closing only one end, may be performed. J. Dumont.

Jianu: Intra-Abdominal Myomaphy of the Levator Ani in Rectal Prolapse. *Deutsche Ztschr. f. Chir.*, 1912, cxviii, 592. By Surg., Gynec. & Obst.

Prolapse of the rectum is due to two causes: (*a*) abnormal depth of Douglas' space of congenital origin; (*b*) primary or secondary weakening of the pelvic floor. Zuckerkandl claims that every rectal prolapse is due to a primary hernia of the perineum. Loops of gut prolapse into the rectovesical space in the male. They push the anterior rectal wall downward. Rational treatment has to consider the following points: Suture of the levator ani, fixation of the abnormally long pelvic colon, and closure of the rectovaginal or rectovesical space, respectively. Jianu suggests to carry out all procedures through the abdomen, instead of partially through the perineum.

Technique: Trendelenburg position; (1) reduction of rectal prolapse by traction upon the pelvic colon; (2) transverse incision of the peritoneum of Douglas' pouch and exposure of the levator ani; detachment of vesical floor and prostate from the rectum in men and vagina in women, respectively; (3) suture of the muscles; the sutures also pass through the muscular portion of the anterior rectal wall, and the last suture transverses the prostate in man, the vagina in woman; (4) colopexy and closure of Douglas' pouch according to Luêna, Duval, and Lenormant. E. C. Riebel.

LIVER, PANCREAS, AND SPLEEN

McDill: Bloodless Surgery of the Liver. *J. Am. M. Ass.*, lix, 1283. By Surg., Gynec. & Obst.

The chief difficulty which the surgeon encounters in liver surgery is the control of hæmorrhage, and, although numerous methods of hæmostasis have been proposed, no one method has proven universally practicable for the great variety of liver lesions.

By means of experimental work, in which he used the ordinary instruments present in every operating room, the author hoped to add to our knowledge in this field of surgery. His method consisted of an ordinary abdominal incision and a second one-inch incision below the costal margin in the right axillary line; through the latter opening he passed an ordinary enterostomy clamp armed with rubber tubing. One branch of the clamp passed through the foramen of Winslow, behind the pedicle of the liver, and the other in front of the vessels for a distance of about two inches. The compression was made near the duodenum, because at this point the vessels lie close together.

The experiments on a few dogs showed that no deleterious results followed complete interruption for 20 to 30 minutes, and it is believed that in clinical use one can render the liver bloodless for at least

8 to 10 minutes. More work along these lines, however, both experimental and clinical, is necessary before the time limit for safety in complete arrest of circulation can be accurately ascertained. To avoid too long compression, the clamp can be loosened and thus permit a partial circulation. Dangerous back pressure in the portal system is manifested by great congestion of the intestinal vessels, blueness of the gut, and by peritoneal ecchymosis. The clamp can be left in situ after an operation to control a possible secondary hæmorrhage.

When the resection of liver is extensive and the tension on the sutures is liable to cause them to tear through the liver substance, it is proposed to pass a Martin gum bandage completely around the liver, thus favoring approximation.

EDMUND H. MENSING.

Deaver: Surgery of the Bile Ducts. *N. Y. St. J. M.*, 1912, xii, 490. By Surg., Gynec. & Obst.

Deaver stated that, through the work of surgeons and laboratory men, it has been shown that, with the exception of malignant disease, all conditions calling for surgical interference upon any part of the biliary tract have their origin in infection. No one form of disease of the biliary tract can be identified with a particular organism. In a series of 142 operations in 1911 on biliary tract, for various lesions, 34 showed B. coli, 50 no growth, 46 not mentioned, 2 B. typhosus, 7 staphylococcus, 1 streptococcus, 1 B. pyocyaneus, 1 B. aerogenes. Even in presence of pus, some cultures showed no growth. In 182 cases of cholelithiasis which were reported by him in 1906, 94 were cultured, and 13 of these showed B. typhosus.

The portal circulation is the most common route taken by these organisms in reaching the biliary tract. He criticised the classification of biliary tract infection as one of declining years, introducing statistics from his cases showing the average age when the condition was known to be present to be 34 years. Low grade infection by micro-organisms greatly attenuated gives rise to gall-stone disease or cholecystic disease, with formation of stones; while acute invasions by organisms of high virulence give rise to acute forms of cholecystitis, cholangitis, and their accompaniments too rapidly to permit the formation of stones.

Gall-stone formation is the most common result of infection, especially where it is of the low grade catarrhal type. Adhesions were present in 45.4 per cent of his cases, and were due to pericholecystic or periduodenal inflammation. In some cases they gave rise to a clinical picture identical with that found in gall-stone disease.

Chronic pancreatitis is so commonly found coexistent with biliary infection that it may truly be considered a part of biliary infection, the infection most likely extending by way of lymphatics. Pancreatic disease demands either temporary drainage of the biliary tract by direct tube drainage, or permanent drainage by some form of anastomosis between the biliary system and the alimentary canal. All cases of infection of biliary passages, unless very transient or coming as intercurrent affections in acute illness, demand drainage of the gall-bladder. Of these, any that show marked infection or a cholangitis demand common duct drainage also.

Indications for operation in disease of the biliary tract are summarized by him as follows:

1. More than one attack of true biliary colic.
2. Symptoms suggestive of upper abdominal adhesions and chronic biliary insufficiency.
3. Hydrops of the gall-bladder.
4. Obstruction of the common duct.
5. Occurrence of acute infections complicating previously existing biliary disease.
6. The evidences of pancreatic disease, acute, subacute, or chronic.

In conclusion, the author emphasized the danger of procrastination and too much deliberation, and insisted that nine tenths of the mortality of operation, so-called, was in reality mortality of delay.

R. W. MCNEALY.

Brandt: The Construction of an Artificial Choledochus by Means of a Simple Drainage Tube. (Die Bildung eines künstlichen Choledochus mittels eines einfachen Drainrohres). *Deutsche Ztschr. f. Chir.*, 1912, cxix, 1. By Surg., Gynec. & Obst.

The construction of an artificial choledochus with a simple drainage tube is indicated in all cases where anastomosis is impracticable or impossible; it is an ultimum refugium where a connection of the hepaticus with the intestines is otherwise impossible. A simple drainage tube is inserted with one end in the hepaticus and the other in the duodenum. The tube should not reach deep into the lumen of the duodenum and should be carefully covered with omentum. The author reports five cases in which this reconstruction of the choledochus was performed at Wilms' clinic in Heidelberg. In the first two cases a heavy silk thread attached to the upper end of a tube led through the choledochus into the duodenum, and from there out through the abdominal wall. In the first case it had to be left in place, the thread being pulled out alone; in the second it was removed through the abdominal wound. Case 3 threw the second tube up by vomiting, after the first one had been replaced for insufficiency. In the fourth case the tube, with its lower end inserted into the stomach, was thrown up by vomiting three months after the operation, and replaced by a second one, which was fixed with catgut and carefully covered with omentum. In the fifth case the tube was fixed with catgut and covered with omentum to be left in place. The first three cases required a prolonged after treatment, the tube being free in the abdominal cavity and uncovered by omentum, thus allowing the escape of bile. In all cases the operation proved to be life-saving, and the success in the first two cases was ascertained to be

absolute 14 to 15 months after the operation. It is a matter of opinion whether it be justifiable to substitute this operation if anastomosis is possible.

F. G. Dyas.

Williams: Transduodenal Choledochotomy for Stone in the Ampulla of Vater; with Fistulous Communication Between the Gall-Bladder and the Duodenum. *Ann. Surg.*, Phila., 1912, lvi, 575. By Surg., Gynec. & Obst.

The author recites the case of a female of thirty-two years, who presented symptoms of common duct obstruction with but slight jaundice, and with history of a violent attack of gallstones three years before.

Operative findings were: Organized adhesions covering a shrunken and thickened gall-bladder, whose body was crossed by a strong adhesion band leading from duodenum to liver; fistulous communication three eighths of an inch in diameter between the fundus of the gall-bladder and the duodenum (demonstrated effectively when the duodenum was opened later); no stones in the gall-bladder, in hepatic duct, or in free portion of common duct; a stone the size of a cherry was removed from the ampulla of Vater by the transduodenal route, this method being selected owing to the obscuring of the area by oozing from torn adhesions. Uneventful recovery of the patient.

Points of special interest are: Obstructive jaundice in the face of an effective fistulous communication with the bowel. This was probably due to frequent mild attacks of cholecystitis, with œdematization and consequent closure of the fistula, plus effects of the adhesion band. Jaundice was never at any time very deep, and this would tend to substantiate this supposition. Secondly, the method of management was unique in view of the fact that the gall-bladder was neither removed nor drained, the latter being the universal custom apparently. In this case, so far as infection was concerned, there seemed no indication; and even had infection been present, except of a severe nature, an additional good opening was present for drainage. Here it would have been necessary either to remove the gall-bladder and close the fistula in the bowel, or the bladder might have been left, its fistula and that in the bowel closed, and then gall-bladder drainage made. It was out of the question to drain the bladder with the duodenal fistula opened. Therefore, for the benefit of the patient, from the viewpoint of time and shock-saving, the gall-bladder with its fistulous opening into the duodenum was allowed to remain as it was, simply severing the constricting band and covering raw surfaces as much as possible.

De Bersaques: Hæmorrhagic Cyst of the Pancreas (Kyste hématique du pancréas). *J. Méd. de Brux.*, 1912, 442. By Journal de Chirurgie.

The author reports the following case: H., 50 years old, had since 1892 presented slight dyspeptic symptoms; in 1905 he suffered from obstinate diarrhœa after meals; in 1907 a slowly developing tumor appeared in the upper part of the abdomen, without any appreciable changes in the general condition. In May he once more felt violent pains in the uppert part of the abdomen. Diagnosis of peritoneal extravasation was made. After a Carlsbad cure, emaciation became very marked, while pains persisted in the region of the waistline.

In August, 1908, when a diagnosis of tuberculous peritonitis had been arrived at, a puncture was made and 500 gr. of colored fluid drawn from the peritoneal cavity; examination showed that it was of non-tuberculous character. The puncture was followed by active pains in the abdomen. After further examinations a treatment with light baths was tried, and brought about reduction of the volume of the abdomen. In 1909 and 1910 the patient had hæmatemeses, which weakened him very much.

On November 10, 1910, De Bersaques examined the patient, who was then very much emaciated, and found the following facts: The abdomen presented considerable distention, with the superficial venous plexuses very clearly marked; the distention was rather regular. Under palpation it gave a dull percussion note throughout its whole extent, except in the left upper region; there was also dullness, though less distinct, on the right side, below the iliac fossa. The dullness of the upper part merged completely with that of the liver. There was no ballottement in the renal region. Phlebitis of the right leg was present.

Diagnosis was undecided as between cyst of the mesentery and cyst of the pancreas. On November 23d, in view of the gravity of the patient's condition, De Bersaques operated. He found a cystic tumor which, when punctured, gave forth a reddish liquid. He made an incision of the cyst, emptied it of its contents, and found that it had developed between the stomach and the transverse colon. He was successful in completely disengaging the cyst and in fastening its nutritive vessels. Closing without drainage; lasting cure.

It is to be deplored that neither a histological examination of the wall of the cyst nor a physiological and chemical examination of the liquid was made in connection with the case.

Paul Mathieu.

Gray and Anderson: Developmental Adhesions Affecting the Lower End of the Ileum and the Colon. The University Press, Aberdeen, Scotland, 1912. By Surg., Gynec. & Obst.

Under this heading are included four adhesions, known as the following: (1) Lane's terminal ileal kink, (2) Jackson's membrane, (3) splenic pericolic adhesions, (4) mesosigmoid adhesions.

Lane's kink is caused by a quadrilateral or triangular shaped membrane extending from the right iliac fossa to the antimesenteric aspect of the ileum, and attached to it for from 1½ to 4 inches. The effect of this membrane is to cause a kinking of

the small intestine and a rotation on its long axis in a downward direction.

Jackson's membrane is a vascularized membrane extending from the parietal peritoneum near the hepatic flexure to the internal longitudinal muscle of the ascending colon, ending just above the caput. Associated with this membrane there is sometimes a narrowing of the colon in the region of the hepatic flexure, resulting in distention and ptosis of the ascending colon and cæcum.

Splenic kink, sometimes called Payr's disease, is due to a short, tense, phrenocolic ligament. The obstruction is apt to be more acute in this region, and results in marked distention and ptosis of the transverse colon.

Lower sigmoid or mesosigmoid adhesions extend from the left iliac fossa to the mesosigmoid, or less commonly, the sigmoid.

As to the origin of these different adhesions, there are several theories. Lane believes them to be due to chronic constipation. Morris, Binnie, and others believe them to be due to pericolic inflammation. C. H. Mayo believes Jackson's membrane to be due to a congenital process formed when the cæcum descends from under the liver.

All of these theories are objected to by Gray, and his idea is that the adhesions are caused by an excess of "physiological fusion."

The symptoms caused by the adhesions in question are of acute and chronic nature. The chronic symptoms are both general and local. The general symptoms are those of autointoxication, such as: staining and wrinkling of the skin, excessive sweating, enfeebled circulation with cold extremities, slight temperature, loss of flesh, muscular degeneration, enteroptosis, dulling of the mental faculties, with restlessness during the night, headache, painful joints, and cystic degeneration of the breasts, which is apt to be followed by cancer. The local symptoms are: heavy distended feeling in the abdomen, slight twinges of pain, borborygmi. Constipation is usually present and of long standing. X-rays may show a distention of the intestinal tract proximal to the obstruction.

Acute symptoms vary greatly in intensity. Pain and tenderness become more severe than formerly, and rigidity is often present. Symptoms of complete obstruction may develop.

The diagnosis is often difficult, but strong suspicions as to the true difficulty are often aroused when the long history of the trouble is considered together with the whole picture. The erroneous diagnoses most often made are: appendicular colic; duodenal or gastric ulcer; chronic intussusception; movable kidney; renal colic; tubo-ovarian disease; cancer of the colon; mucous colitis.

The treatment adopted should be surgical, with the division of the offending membrane and covering of the raw surfaces with peritoneum. The peritoneum is usually sutured over the raw surfaces with very little difficulty, but occasionally it is advisable to use a part of the omentum in covering over the raw surfaces. Where extensive adhesions are present, an ileocolostomy or ileoproctostomy may be necessary.

The prognosis is good as to the recovery of good health. Constipation is usually entirely relieved. A few cases have had occasional attacks of diarrhœa.

James H. Skiles.

SURGERY OF THE EXTREMITIES

DISEASES OF THE BONES, JOINTS, ETC.

Klemm: Acute Osteomyelitis of the Pelvis and Sacrum, together with Four Cases of Osteomyelitis of the Vertebræ (Die akute Osteomyelitis des Beckens und Kreuzbeins nebst 4 Fällen von Wirbelosteomyelitis). *Beitr. z. klin. Chir.*, 1912, lxxx.

By Surg., Gynec. & Obst.

Among 1469 cases of osteomyelitis collected from the literature, there were 24 cases involving the pelvis. Klemm's percentage was higher, he having 269 cases of osteomyelitis, among which there were 40 pelvic cases. Nearly half of the cases occurred in children from eight to twelve years of age. Seventy per cent of the cases were the result of a staphylococcus infection. The ilium is the bone most frequently involved, 26 of the 40 cases occurring in this bone. There was either a diffuse softening of the entire medulla or a circumscribed abscess. The old teaching that suppurative osteomyelitis has its seat of predilection in the shaft of long bones, and that tubercular infection takes place in the epiphyses of long bones and in flat and spongy bones, can no longer be maintained. It has been conclusively established that a staphylococcus infection will involve not only the epiphyses, but the flat and spongy bones. In fact the two processes are at times very difficult to differentiate clinically, or even pathologically. In sacral osteomyelitis the sacro-iliac joint may be implicated, the same being the case when the posterior portion of the ilium is the seat of necrosis. The spinal canal is sometimes, though rarely, affected. Von Bergman has said that osteomyelitis of flat bones takes its origin from those areas especially where there are the largest deposits of spongy (vascular) substance. This happens to be also the seat of the greatest developmental activity. Osteomyelitis of the pubic and ischial portions of the pelvis is more rarely encountered.

The general symptoms of osteomyelitis of the pelvic girdle are those characteristic for this disease elsewhere. There is the same profound intoxication which is so characteristic. Later on, abscesses are formed, which point at various places within and outside of the pelvis. Early treatment is very essential and should be most radical. The entire

diseased area should be exposed and removed, no matter how much of the bone is thereby sacrificed.

WILLIAM HESSERT.

Fraser: The Relative Prevalence of Human and Bovine Types of Tubercle Bacillus in Bone and Joint Tuberculosis Occurring in Children. *J. Exp. Medicine*, 1912, xvi, 432.

By Surg., Gynec. & Obst.

Fraser here presents a report of a study of 70 cases of bone and joint tuberculosis; 39 cases were of joint disease, 31 of bone disease. All the patients save 3 were under 12 years of age. Only material removed by operation was examined. Guinea pigs were inoculated with the material and the bacilli isolated from the animals at the end of four to six weeks. The following means of differentiation were then made use of: (*a*) The original culture test; (*b*) The morphological test; (*c*) The special culture test; (*d*) Theobald Smith's test; (*e*) The inoculation test. Brief results of the technique are given.

The results of these studies showed that, of 67 children, 41 (61 per cent) were infected with the bovine type, 23 (34 per cent) with the human, and 3 with both; 41 of these cases were under 4 years of age and of this number 29 (70 + per cent) showed the bovine type. In 21 instances a history was obtained of pulmonary tuberculosis in the patient's family. From 15, or 71 per cent, of these 21 patients, the human type of bacillus was recovered, as contrasted with 17 per cent human type for those patients who gave no such family history.

Fraser concludes that a large proportion of joint and bone tuberculosis occurring in Edinburgh children is of the bovine type, and points out that his results are proof of the condition of the milk supply.

JAMES F. CHURCHILL.

FRACTURES AND DISLOCATIONS

Worms and Hamant: Fractures of the Neck of the Femur in Childhood and in Adolescence (Les fractures du col du fémur dans l'enfance et dans l'adolescence). *Rev. de Chir.*, 1912, xlvii, 416.

By Journal de Chirurgie.

After being for a long time confused with separation of the epiphysis, the fractures of the neck of the femur are now found to be more frequent in childhood and adolescence than we have so far believed.

Worms and Hamant, judging by their radiographs and experiments on the dead body, even believe that in young people these fractures are quite as frequent as separation of the epiphysis.

The fracture may occur at all ages, but the periods of predilection are adolescence and old age, and in young people the years from 10 to 18.

The fracture is nearly always due to direct causes and in those sometimes the cause is insignificant; in such cases we must grant a special fragility of the bone tissue. Finally, a decrease in the angle of inclination of the neck, a primary coxa vara, may possibly create a predisposition for this fracture.

Fractures of the base of the neck (and these are sufficiently common to be distinguished from separation of the epiphysis) occur most frequently in young people. Finally there is a variety of mixed fractures, which include complicated separation of a bone splinter, either supracervically or subcervically, and constitute a distinct variety of fracture.

Penetration is rare in complete fractures. But it is not rare to observe incomplete or greenstick fractures and the subperiosteal fractures in general which, here as elsewhere, occur especially in youth.

The seriousness of complete fractures results entirely from their vicious union; this leads to trochanteric coxa vara, a type to be contrasted with essential coxa vara, which is chiefly cervical. Pseudarthrosis is rare.

The incomplete fractures, however, so far as their origin is concerned, probably must also be classed with the forms of coxa vara called essential. The disturbances of growth to which they give rise may lead even to a coxa vara characterized by curvature of the whole superior epiphysis.

An absence of symptoms in general characterizes these fractures. Impotence, deformities, and pain are often absent, so that it is only by radiography, which must never be neglected in these injuries, that the diagnosis can be made.

We may, however, find slight ecchymosis in the popliteal pit. In fractures of the head we may note tenderness and tumefaction in the triangle of Scarpa at the external border of the sartorius. The pains are more intense in juxta-epiphyseal fractures. Abnormal mobility, because of penetration, is rather marked in the region of the great trochanter. Symptoms other than this may be absent.

Incomplete fractures can be diagnosed only with the aid of radiography.

The prognosis in all these fractures depends upon orthopedic complications, which are rather frequent; among these complications is the development of coxa vara of one of the types described above. Vicious and exuberant callus is the result of an exaggerated process of repair.

The condition which most frequently has to be differentiated is simple contusion, and every contusion of the hip in young people should be radiographed. Distinction from separation of the epiphysis is often a delicate matter; the immediate symptoms are however less marked than in fracture. Luxations remain to be differentiated, but that in general is more easy.

If the injury is old, the fracture must be differentiated from coxa vara; this is done by the etiology of the condition. Diagnostic distinction from congenital dislocation is possible by the presence in the latter of displacement of the head of the femur; distinction from coxalgia is possible by the presence of a curvature of the femur.

Treatment has during the last few years undergone an interesting development. Its aim is above all to avoid coxa vara. If the fracture is recent and incomplete, treatment consists in a rigorous immobilization with extension; walking must not be

permitted until late, in order to avoid throwing weight on a callus before it has become very resistent.

If the fracture is complete, perfect reduction is essential for the re-establishment of normal function. Experimentation and clinical experience have shown that the best position for immobilization is adduction and internal rotation.

The open treatment is indicated in the juxta-epiphysary fractures, with extensive lacerations of the capsule. Between fixation by means of inserting a medullary peg without arthrotomy, and arthrotomy followed by plating and enclosing in a plaster cast, the authors give the preference to the former of these operations.

If the fracture is old, it is above all the treatment of coxa vara which is called for. This means osteotomy of the neck and resection of the head; but the operation which seems to give the best results is horizontal osteotomy or oblique subtrochanteric osteotomy, which has the advantage of being extra-capsular. The treatment of pseudarthrosis does not differ from that of pseudoarthrosis in the adult.

I. Okinczyc.

Gelinsky: Fracture of the Patella. *Zentralbl. f. Chir.*, 1912, xxxix, No. 45. By Surg., Gynec. & Obst.

Early movement is essential in the after treatment of fractured patella to overcome the tendency of muscular contraction and contraction of the soft parts, producing a stiffening of the joint. The author constructed a splint which permits graded flexion and extension of the knee-joint without change of position. The splint represents a double inclined plane with ratchet attachment at the angle. It is connected with an endless screw running in the base of the apparatus. The thread of the screw is very fine and the attached handle very long. As a result the movements may be graded in fractions of a millimeter. Flexion gradually stretches the muscle; if a sensation of tension occurs flexion is at once stopped. The muscle soon accustoms itself to the new position and tension ceases. After 10 or 15 minutes all disagreeable sensation is gone and further flexion can be begun. The exercises may be continued in this manner for twelve hours or more each day. At the close of the exercise the space traversed during the day is gone over rapidly several times by turning the handle backwards and forwards. Gelinsky describes two cases in which the bone suture cut through the bone after operation. In the first, a second suturing was done; while in the second, a metallic clamp resembling that of Malgaigne was applied subcutaneously. The clamp remained in situ after the patient left the bed, and was removed 22 days after operation. Gelinsky emphasizes the importance of exact suture of the extensor apparatus and the relative unimportance of the bone suture. In further cases he would dispense with the bone suture and substitute this with the clamp, after exact opposition and suture of the connective tissue bands constituting the extensors. The clamp permits immediate movements, eliminating the possibility of breaking or cutting of bone. In case of loosening, the clamp can be tightened. The prongs of the clamp are anchored in the patella and do not protrude into the joint. They may easily be kept aseptic. The splint has been used with advantage in inflammatory affections of the knee-joint, especially in gonorrhœal inflammations.

E. C. Riebel.

Martin: Injuries to the Semilunar Cartilages; A Personal Experience of 449 Cases of Operation. *Lancet*, London, 1912, clxxxiii, 1067. By Surg., Gynec. & Obst.

Between the year 1900 and the year 1911 the author has operated upon 449 cases (413 hospital and 36 private) diagnosed as suffering from injury to the semilunar cartilages. The author is not satisfied that there is ever a true detachment, for even where the split is very near the attached margin, a narrow rim of cartilage still retains its normal position. In the present series of cases, 95.5 per cent of them showed definite splits or tears, so that only in 4.5 per cent there was no definite pathology.

Coal miners are the most frequent sufferers from the torn semilunar cartilage, and in the present series, out of 449 cases, 282 occurred in miners while following their employment. This gives a percentage of 62.8. This he explains by the fact that the coal miner performs his work with his knees more or less flexed. Football players are also very liable to the accident. Out of the 449 cases, the accident occurred 81 times while playing football, a percentage of 18.

The internal semilunar cartilage is much more often injured than the external; the former shows a percentage of 92, while the latter shows a percentage of 8. The right knee is slightly more frequently affected than the left, the percentage of the one being 53.3 and the other 46.7. Sometimes it is impossible to diagnose whether, in the case of an injured knee, the internal or the external semilunar cartilage is at fault.

The majority of sufferers from torn semilunar cartilage give a very typical history. When one first sees the patient the primary tear occurred months or years previously, and the subsequent attacks of "something going wrong with the joint" have been comparatively slight, consisting, perhaps, of little more than experiencing a click or a snap at the inner side of the knee with pain in the same situation. Then momentarily the joint locks, and suddenly, after moving the knee himself or somebody moving it for him, another click or snap is experienced, and full power of movement is regained. When the primary tear takes place the symptoms are more severe. The best time to operate is after the first week or ten days following the primary accident.

Previous to and during operation the most rigid antiseptic precautions are called for. The incision used is a transverse one, extending, in the case of the

internal cartilage, from the inner border of the patellar tendon backwards for about two inches in the line of the articulation. In every case the author removes not only the detached piece of cartilage, but endeavors to ablate the portion still retaining its normal attachment; and since doing this he has had no patient return with recurrence of symptoms. No splint is used, and the patient is told to commence to move his knee as soon as he can. Infirmary patients are discharged as a rule on the tenth day, being then able to carry out full movements of the joint.

After history. Except in a very few instances, patients have been quite satisfied and have told the author that the joint was as strong as ever. Where the operation has been upon amateur or professional football players, it has enabled them to play again, and many of them are still playing.

DONALD C. BALFOUR.

Ross and Stewart: A Study of Sprain-Fracture as an Essential to the Occurrence of Dislocation. *Ann. Surg.*, Phila., 1912, lvi, 599.

By Surg., Gynec. & Obst.

Ross and Stewart contend that the integrity of joints depends on the ligaments which are made of white fibrous connective tissue. This tissue is inelastic, and the strongest tissue in the body. When the breaking strain necessary to produce luxation occurs, it is the bony and periosteal attachment of the ligament that gives way, and not the fibers themselves, thus producing the sprain or tear fracture. They have attempted to prove the contention by 38 experiments on living dogs, 14 on the cadaver, and by X-ray pictures of all luxations taken in several planes. In every instance a sprain-fracture was demonstrated, and in no instance were the ligaments torn or stretched. They believe, therefore, that sprain-fracture is the first step of, and an essential factor in, the production of luxation. Therefore all luxations should be treated for a longer period than is usually the case, and the limb should be dressed in a position to favor the reduction of the fracture and the coaptation of the broken surfaces. Their conclusions are:

1. Practically all, if not all, dislocations are permitted by the primary occurrence of strain of tendons and ligaments, followed by avulsion of tendons, and then sprain-fracture or gross fracture.

2. It is possible that some dislocations are permitted to occur by separation of the fibers of the capsule in place of by sprain-fracture or gross fracture.

3. All dislocations should be skiagraphed, and if evidence of fracture is not found at first, pictures should be taken in many planes.

4. All dislocations should be treated as if fracture had occurred, even in the event of negative X-ray evidence.

5. Some sprain-fractures are too small to be shown by X-ray pictures.

6. Often there is spontaneous reduction of dislocations, and sprain-fracture or gross fracture is the only evidence left that can be detected by X-ray.

7. The sites of sprain-fractures or gross fractures provide the foci from which the osteoblasts issue, in those cases showing excessive callus or covering of joint surfaces with osseous tissue; moreover, the softer tissues found in joint cavities within a short time after the occurrence of dislocations are often in some stage of transformation into bony tissue.

8. Sprain-fractures, or fractures occurring consistently in experimental dislocations on cadavers, afford the most positive proof of the fact that dislocations are permitted to occur in this way; but failure to demonstrate sprain-fractures or fractures consistently in experimental dislocations on cadavers means nothing, since the stage to which degeneration has advanced determines whether the greater tensile strength remains in the tendons and ligaments or not.

9. Whether the force be suddenly or slowly applied, sprain-fracture or fracture precedes the occurrence of practically all, if not all, dislocations.

Vaughan: Central Dislocation of the Femur. *Surg., Gynec. & Obst.*, 1912, xv, 249.

By Surg., Gynec. & Obst.

Vaughan has collected from the literature 25 "clear" cases of central dislocation of the femur, to which he adds one of his own, and 39 "doubtful" cases. The symptoms closely resemble those of impacted fracture of the femoral neck, from which it is distinguished chiefly by the X-ray or by feeling through the rectum the head of the femur in the pelvis. In the 26 "clear" cases the mortality was 30 per cent, and of the 18 recoveries only 3 were perfect as to function. In 37 "doubtful" cases the mortality was 47 per cent. If the usual methods fail to reduce the dislocation, open operation is advised. This had to be done in Vaughan's case. The head and neck of the femur were exposed, and attempts were made by traction and manipulation to withdraw the head through the ring of acetabulum, which fitted closely around the neck and had to be pried open with a lever before the head could be withdrawn.

SURGERY OF THE BONES, JOINTS, ETC.

Dujarier: The Open Operative Treatment of Recent and Old Fractures (De l'intervention sanglante dans les fractures récentes et anciennes). 25th Cong. de l'Ass. fran. de Chir., October, 1912.

By Journal de Chirurgie.

Since his communication of last year, Dujarier has operated upon 24 fractures of long bones: 16 of the leg, 4 of the forearm, 2 of the humerus, and 2 of the femur. Thirteen of these fractures were recent; 11 were old. In treatment of fractures of the leg, he insists upon a few details of technique. Almost all of these fractures were oblique, some were hooked,

some were looped. Dujarier believes that, when practicable, looping with a strong copper ligature gives a stronger and a more solid coaptation. In a few cases, reduction was so perfect that the radiogram failed to show the line of fracture. When the two loops are well tightened it is needless to apply a plaster cast. A simple dressing suffices, and massage and mobilization can be commenced within a few days. For the reduction of leg fractures he makes use of Lambotte's tractor. Especially in cases of absolute non-union, where powerful traction is necessary, has he found this instrument very useful.

There were three non-united fractures and one recent fracture of the forearm. In these fractures of the forearm, Dujarier concerns himself only about the radius. When this bone is well reduced the ulnar fragments spontaneously come in contact and it is needless to act upon the ulna. In each of these four cases he obtained coaptation with a single hook. The hook gives to a sutured bone a perfect rigidity, secures to the radius its normal internal concavity, and restores the integrity of the interosseous space. The late results were excellent, consolidation being obtained in from 35 to 45 days. Pronation and supination were retained, and patients could resume work.

Only two cases of fracture of the humerus were operated upon. One was a case with fracture of the surgical neck, with displacement inward of the inner fragment. Reduction was effected and maintained by the introduction of a hook; union resulted in 25 days. The other was a fracture of the lower third, with displacement forward of the lower fragment. Reduction in this case was maintained with a single hook, and union was complete in 40 days. In his two fractures of the femur, one recent and one old, reduction was obtained and fixation effected by two hooks. These cases were operated upon recently, and the author is not ready to report the results.

In general conclusion, Dujarier says that in his cases he did not employ drainage, and that he always obtained healing by first intention. He believes that by operating with gloves, by scrupulously keeping the fingers out of the wound, and by delaying intervention until the soft tissues have somewhat recovered from the immediate effects of the accident, one can expect and obtain healing by first intention. The fate of the foreign metallic bodies varies. The hooks may usually be left in place indefinitely. It is almost always necessary to remove the loops of copper wire. Dujarier removes them about the thirteenth day, when consolidation is established. All of the recent fractures of the leg were consolidated in from 30 to 35 days. The consolidation of pseudarthroses is slower, taking from 50 to 60 days or more. At the end of two months, in cases in which union is not complete, the limb is immobilized in salicylate of soda bandage and the patient is allowed to walk. The only accident noted was an ulcer of the leg developing at the level of the operative wound for an oblique fracture. This ulcer was accompanied by an eczema. Both ulcer and eczema were completely healed at the end of four months.

J. Dumont.

Taylor: Progressive Curvature of the Radius (Madelung's Deformity) Corrected by Osteotomy. *Med. Record*, 1912, lxxxii, 752.

By Surg., Gynec. & Obst.

Progressive curvature of the radius occurs mostly in girls of eleven or twelve years of age, and is usually bilateral; it is sometimes a familiar disease. The etiology is unknown. It consists of a progressive bending of the radius, concavity forward; the carpus and hand are carried forward with the radius, simulating an anterior luxation, but the ulna, owing to its loose attachment to the carpus, remains in its original position, making a projection on the dorsal aspect. The shaft of the radius is also bowed away from the ulna, increasing the inclination of the epiphyseal line. The radial curve may be mostly at the distal end, or it may involve most of the shaft. If the deviation is low down, wrist motion and rotation may be more or less blocked. There are varying degrees of pain, tenderness, weakness, and disability, and the deformity is always unsightly. The affection progresses for a year or two, after which it becomes fixed and painless. Deformity may be corrected and function restored by a cuneiform osteotomy of the radius one inch above the wrist, moderate hypercorrection, and fixation in a splint for four weeks. Gentle massage and passive movements may be begun in two weeks after the operation.

A successful result is reported in a girl of fifteen.

Desmarest: On the Treatment of Traumatic Separation of the Lower Epiphysis of the Femur, in Particular by Apposition with Plates and Bone-Screws (Sur le traitement du décollement traumatique de l'épiphyse inférieure du femur, en particulier par la suture à l'aide de plaques et de vis). *Rev. d. Chir.*, 1912, xxxiii, 517.

By Journal de Chirurgie.

Simple separation of epiphyses generally lends itself to reduction and immobilization, but it is not uncommon to observe separation associated with vascular or nervous complications or with a wound which establishes communication between the focus and the exterior. In this last case open intervention may be necessary, but before proceeding to it the more conservative methods should first be resorted to.

Though it is granted that reduction is the rational treatment for simple separations of the epiphyses, it does not mean to say that this reduction is easy or even always possible. Cases of false reduction are not exceptional, and manifest themselves late through disorders that are to be considered grave from the point of view of the growth of the lower member.

Desmarest does not believe in the efficacy of reduction by extension, nor of immobilization in continued extension; the method of reduction in flexion with immobilization in this position is certainly preferable; but sometimes it is not well borne and at other times the results are not all that could be desired. Led by the critical study of his results, Desmarest would advise bloody treatment of separation of the epiphyses of the lower extremity of the femur only in certain cases and after proven failure of bloodless methods.

He gives the preference to the lateral incision, since it is less mutilating. He also believes that it is preferable for insuring immediate fixation of the fragments. In one case he employed aluminum splints, with rather good results. These splints are easily modeled to fit the fragments requiring coaptation and are held in place by bone-screws which are adjusted about the cartilage at the point of juncture. The results obtained by Desmarest under these conditions date back a year, seem satisfactory, and appear to be still improving.

I. Okinczyc.

Payr: The Operative Treatment of Knee-joint Ankylosis. *Arch. f. klin. Chir.*, 1912, xcix. By Surg., Gynec. & Obst.

The bloody mobilization of an ankylosed knee-joint is an operation which is technically difficult, in its indication very subtle, in its after treatment very tedious and laborious, but very gratifying in its result. The original idea came through Helferich. Hoffa, Murphy, and Payr were instrumental in making it popular. Payr favors the interposition of tissue, and does not think that the transplantation of a whole joint (Lexer) promises as much. He favors the use of pedicled flaps, and uses free flaps only in secondary operations. Three points are of importance for the success of the operation: (1) exact indication, (2) good technique, and (3) efficient after treatment. The operation is indicated in youthful individuals, not in children; and in people who are willing to undergo the inconvenience of long treatment, who still have a good muscular apparatus, and in whom the primary disease which led to the ankylosis is entirely cured. This explains the contraindication where disease persists. Röntgen diagnosis is paramount. The technique is varied. The author uses no constriction, but ties every vessel, opens broadly the capsule, and removes all cicatricial tissue and such parts of the capsule and joint as may interfere with free motion. He models the joint surfaces to form mechanically free joints, then interposes a pedicle of the fascia lata over the femoral joint surface and closes all incisions. The after treatment consists in early, gradual motion and passive exercise, always with the view of not disturbing the skin cicatrix. Too long rest and too little excision of soft parts are responsible for poor results. Payr's results were gratifying.

Carl Beck.

Stuckey: The Free Transplantation of Bone in the Treatment of Pseudarthrosis (Ueber die freie Knochentransplantation bei der Pseudarthrosenbehandlung). *Beitr. z. klin. Chir.*, 1912, lxxx, 1. By Surg., Gynec. & Obst.

Displacement of the fragments and interposition of soft parts are among the frequent causes of non-union. Such cases have been treated by freshening the ends of the bones in various ways, by wedging one fragment into the medullary cavity of the other, or by one of the many means of fixation with suture, nails, staples, pegs, or plates. Union, however, does not always follow this treatment, owing to lack of callus formation. Another mode of treatment has for its object the stimulation of callus formation by such means as friction of the fragments, hammering the seat of fracture when superficially situated, or by the injection of defibrinated blood. Compound comminuted fractures, with infection and exfoliation of loose fragments, frequently result in non-union, owing to loss of continuity. In the latter class of cases the above mentioned methods are useless, and some form of transplantation must be practiced. At first autotransplants, obtained from the neighborhood of the defect, were employed. The bony transplant was, for better nourishment, left attached to a pedicle of soft parts. Experiments soon showed that a pedicle was unnecessary, as a free transplant would heal in.

Stuckey makes an autotransplantation wherever possible, in preference to using homo- or heterotransplants. He reports ten cases of non-union treated by free transplants with very good results. Good union is conditional upon the absence of suppuration, and while union was slow to occur in some of his cases it eventually took place, even as late as six months or longer. The technique consisted first in freshening the ends of the fragments. The frequent occurrence of a true new joint with capsule and synovia was noted. The medullary cavity was excavated sufficiently to receive the transplant. The latter was taken preferably from either the tibia or fibula of the same individual. The author believes that the transplant should not be detached from its overlying periosteum. It is then driven into the medullary cavity of the fragments. Further security is lent by wires or nails if necessary. The article concludes with detailed records of the cases operated upon.

William Hessert.

Axhausen: Transplantation of Joints. *Arch. f. klin. Chir.*, 1912, xcix, 1. By Surg., Gynec. & Obst.

Axhausen reports histologic observations on the homoplastic transplantation of joints in rats and rabbits. The lower end of the femur was implanted into the subcutaneous tissue of the back in 8 rats, and histologic examination of the transplant made at intervals of 3 to 100 days. In rabbits the patella and pieces of the epiphysis of the femur were used for transplantation in a series of 20 animals. Examination shows that the transplanted tissue cells

remain for a time in an unchanged or indifferent stage. Part of the cells retain their normal structure and staining properties permanently. The remainder show retrogressive changes, with shrinkage of the nucleus and total dissolution of the nucleus. These changes regularly take place from the periphery to the centre. The bone cells in the transplant without exception go from the indifferent stage to the stage of shrinkage and destruction of the nucleus. Substitution takes place chiefly from the periosteum and medulla transplanted with the bone tissue. Bone tissue, in the histologic sense, is therefore not transplantable.

The superficial parts of the medullary tissue nearest the mother substance retain their vitality. The bulk of the medullary tissue undergoes necrosis, beginning at the periphery and extending into the depth. Substitution takes place from the surrounding connective tissue and from the osteogenetic elements in the surface layer. Medullary tissue, histologically, can therefore be transplanted.

The joint cartilage in the zone adjacent to the mother substance shows definite signs of life after the end of the indifferent stage. The deeper lying cells show destruction of the nucleus. Active proliferation of the cells in the live remnant of cartilage results in a cellular substitution of the dead cartilage cells with persistence of the ground-substance. When live cartilage is absent, the necrotic cartilage is removed by lacunar or vascular resorption. Joint cartilage, both histologically and practically, can be transplanted.

The epiphyseal cartilage, after a prolonged indifferent stage, shows only a flat superficial zone of vitality under the perichondrium or at the point of section. The major part of the epiphyseal cartilage undergoes destruction. Cellular substitution plays only a minor rôle. Lacunar and vascular resorption removes the greater portion of the dead tissue. Ossification occurs only in the preserved piece of cartilage. Developmental disturbances are the natural sequence. Epiphyseal cartilage, accordingly, is transplantable in the histologic sense, but not enough for practical purposes. E. P. Zeisler.

Buchanan: A New Method of Bone Transplantation for Ununited Fracture. *Internat. J. Surg*, 1912, xxv, 309. By Surg., Gynec. & Obst.

The method described consists in (1) refreshing the ends of the fragments and adapting them to each other; (2) reflecting the periosteum from the exposed surfaces over the presenting area for a space sufficient to permit the removal of a transplant from each fragment; (3) sawing from the entire thickness of the compact tissue (surface to medulla of each fragment) a rectangular transplant; (4) making the transplant that comes from the larger and better fragment twice as long as that cut from the other fragment; (5) cutting both transplants exactly the same width and in the same direction and aspect of the bone; (6) transposing these transplants, so that the upper will be below and the lower above; (7) wedging each firmly in its new position by taps of a mallet; (8) suturing periosteum and soft parts.

The result is that a substantial bridge of bone connects the fragments, having its center at their junction. No bony defect remains. The transplants are of the same nature and thickness as the bony bed in which they lie. The fragments are not separated from connection with the soft parts more than is necessary for replacement in proper position. No foreign body plugs the medullary cavity. The fracture is practically converted into a recent comminuted fracture in which the fragments are favorably disposed and the parts aseptic. The method is peculiarly adapted to those not infrequent cases of non-union of the tibia in which the fibula is united and the fragments in good line.

The author reports such a case with illustrations in which solid bony union was secured by this method in six or eight weeks, after failure of resection, and resection with plating. In this case the larger transplant was 2¾ x ⅝ inches, and the smaller 1½ x ⅝ inches.

Jokoi: Experimental Contribution to the New Formation of Bone by Injection or Implantation of Emulsion of Periosteum. *Deutsche Ztschr. f. Chir.*, 1912, cxviii, Sept. By Surg., Gynec. & Obst.

Experiments on rabbits and dogs. (1) Implantation of pieces of periosteum taken from the animal itself and placed in the extremity subcutaneously or intramuscularly. (2) Implantation of periosteum upon other animals of the same species. (3) Some implantation upon animals of another species. (4) Injection of an emulsion of blood and periosteum subcutaneously. (5) Injection of periosteum emulsion and 10 to 20 drops of a 1 per cent fibrin solution, intramuscularly. (6) Injection of the cambium layer scraped from the periosteum.

Summary of experiments: (1) Autoplastic implantation or injection of periosteal emulsion produced marked new formation of bone in 6 to 10 cases. (2) Homoplastic implantation or injection may produce new formation of bone. It does not occur as regular nor as strong as in autoplastic implantation. (3) Heteroplastic implantation or injection gives negative results. (4) The injection of blood does not seem to stimulate the osteoblastic activity of transplanted periosteum. (5) Simultaneously injected fibrin seems to stimulate the cambium cells of the transplanted periosteum to increased bone formation. (6) Injection of cambium layer is negative. (7) Bony particles which have been implanted accidentally are usually taken up by lacunar absorption. E. C. Riebel.

ORTHOPEDIC SURGERY

DISEASES AND DEFORMITIES OF THE SPINE

Fisher: Injuries of the Spinal Column, with and without Fracture and Dislocation. *J. Am. M. Ass.*, 1912, lix, 1501. By Surg., Gynec. & Obst.

Fisher says sensory disturbances are the most immediate indicative symptoms of either possibility of operation or probability of recovery after operation. He considers indications for operation thus:

1. With an irregular line of sensory disturbances, i. e., loss of sensation on one side high up and on the other side low down, even with motor and bladder paralysis and possibly complete loss of reflexes, there is very likely extraspinal hæmorrhage rather than hæmorrhage into the cord substance; hence favorable operative result is probable.

2. With incomplete disturbance of sensation, either unequal on one side or with sensation lessened without a complete loss.

3. Cases which, in addition to the latter, show incomplete though rather extreme degree of loss of motion, even if vesical paralysis is present, provided an irregular distribution of motor paralysis exists.

Sensation at time of injury and a few days after is of greatest importance in determining for or against operation. If sensation improves for a day or two, then begins to decline or remains stationary, operation should be done at that time, if at all.

He cites Allen's experimental evidence that longitudinal incision does not impair the cord function, but does relieve œdema often accompanying fractured spine. Shock to the spinal column transmitted to spinal cord can throw out the function of the spinal cord, presenting symptoms at onset similar to those of absolute lesion of spinal cord.

When there is an absolute loss of sensation, with the usual complex of loss of reflexes and paralysis of rectum and bladder and the well-defined transverse line of demarcation of anæsthesia, the case is unfavorable for operation. Any variation from this condition indicates possibility of a good result from operation. After paralysis has existed several months, operation is almost futile.

With slight chance of recovery he favors operation, because in the hands of a skillful surgeon there should not be any special danger in the operation itself. L. G. Dwan.

Jourdan and Oeconomos: Sarcoma of the Posterior Arch of the Atlas; Extirpation; Recovery (Sarcome de l'arc postérieur de l'atlas; extirpation; guérison). *Montpellier Méd.*, 1912, xxxv, Oct. By Journal de Chirurgie.

Jourdan and Oeconomos report the case of a man 35 years of age who entered the hospital because of an ulcerated tumor on the left side of the neck. The beginning of the affection dates back nine or ten years. At that time the patient observed the presence of a small tumor in the left lateral region of the neck. Little by little it increased in size until 4 years ago, since which time it has remained stationary. Six or eight months ago, however, the patient, wishing to relieve himself of the tumor, applied a cosmetic salve. In four or five days an ulcer appeared. At the end of two months, the center of the tumor was occupied by a necrotic zone of considerable size. A copious hæmorrhage made the patient decide to change his therapy; but by this time the tumor had considerably increased in size; it had a base of implantation 5 cm. by 7 cm. in diameter, and supported an ulcerated area as large as a 5-franc piece. At times it was painful, when the pain also radiated to the head.

On palpation it was found that the limits of the tumor were clearly marked anteriorly and superiorly, but posteriorly and inferiorly its outlines were lost in the cellular tissue. In the region of its upper border one could feel a much harder portion, which adhered to the occipital bone. The tumor itself was soft, elastic, and appeared pseudofluctuant. It was not movable, its adherence to the bony layers being complete. There was no glandular involvement.

Anæsthesia was obtained by ether, given by the drop method. An incision was made around the circumference of the tumor. Muscular adhesions were very numerous. The larger portion of the sterno-cleido-mastoid, of the trapezius, and of the vertebral muscles was cut and resected. Then it was perceived that the tumor had arisen from the left branch of the posterior arch of the atlas. It was removed with difficulty. The arch of the atlas was completely destroyed. A few bony fragments which remained were resected with the gouge forceps. This operation was extended as far as the healthy tissue, which was not reached before the spinal apophysis and a good portion of the articular mass on the left had been removed. In the course of this process of cleansing out, the vertebral artery was injured. A self-adjusting forceps was therefore left in place. The bulb lay bare in the pit of the wound. Hæmorrhage was arrested by careful hæmostasis. The wound was not closed, but was tamponed with gauze. The superficial layers of the dressings were soaked with alcohol, which was applied very gradually. Normal salt was infused directly because the operation had been very bloody.

A half hour after the operation the patient became suddenly pale and respiration ceased. The pulse was hardly noticeable. Artificial respiration was employed and the patient given an injection of 5 cc. of camphorated oil. Artificial respiration had to be continued for more than 20 minutes, respiration ceasing whenever the maneuver was interrupted. Little by little the pulse became perceptible again, respiration returned, and the patient revived.

The patient left the hospital recovered. When he

was seen again at the end of July he was in excellent condition.

Examination of the specimen proved it to be a round-celled sarcoma. J. Dumont.

Frölich: Coxa Vara; Its Relation to Fractures and Epiphyseal Separations of the Upper End of the Femur (La coxa vara; ses rapports avec les fractures et les décollements épiphysaires de l'extrémité supérieure du fémur). 25th Cong. d. l'Ass. fran. d. Chir., Oct., 1912. By Journal de Chirurgie.

Coxa vara, coxa vara of adolescence or static coxa vara, is an uncommon affection of the hip occurring at puberty. It is characterized, anatomically, by an upward and backward slipping of the femoral head at the level of the epiphyseal cartilage. Clinically, it is manifested by limping and by adduction and rotation of the lower limb. It is unilateral or bilateral. Symptomatic coxa vara is more frequent than coxa vara of adolescence in a proportion of ten to one. The examination of specimens and radiographic studies have shown that in adolescence the seat of the incurvation is near the femoral head at the level of the union of the neck and the epiphyseal cartilage. This constitutes cervical coxa vara. In the other varieties of incurvation of the neck that occur at all ages, and in a number of localized or generalized bone diseases, the collapse of the neck takes place at the level of its trochanteric implantation. These are known as trochanteric coxa vara. There are thus two forms: coxa vara of adolescence or cervical coxa vara, and symptomatic or trochanteric coxa vara.

The essential form is the result of an overloading of the femoral neck at the time of adolescence or of the insufficiency of the epiphyseal cartilage. The cause of this deficiency has not been positively determined. It may be an attenuated, abandoned infection. The effects of the overloading and gliding downward and backward of a femoral head are at times accelerated by injury, and some have spoken of spontaneous fracture. The lesion lasts one, two, or three years. The following functional disturbances are present: limping and an increasing collapse of the neck, then there follows a period of rest, then comes a spontaneous regression of the difficulties of gait and an increase in the amplitude of motion. The prognosis is good. The aim of treatment is to withdraw from the femoral head the body weight and to correct its bends. Rest in bed, continuous traction, removal of the body weight from the articulation, sitting posture, with spread limbs upon low stools, massage, mechanical therapy — all are measures of therapeutic value. When the disease is fully developed, forcible correction with rupture or division of the adductors improves the condition considerably. When the osseous deformities are marked and interfere very much with walking and with the play of articulation, a subtrochanteric osteotomy is indicated. Resection of the hip and shaping of the head and of the neck and vertical osteotomy of the great trochanter are only exceptionally indicated.

In the treatment of symptomatic coxa vara, the same principles are observed if the primary osseous affection does not contraindicate intervention. Symptomatic coxa vara is met in congenital malformations, rachitis, tuberculosis, osteomyelitis, fibrous osteitis, arthritis deformans, osteomalacia — all these forms of coxa vara present symptoms that allow the different types to be differentiated from each other and from essential coxa vara. There is one exception: though there can be no confusion between fracture of the neck of the femur and coxa vara of adolescence, coxa vara of adolescence and traumatic epiphyseal separation cannot be distinguished, either anatomically or clinically. In both cases we are dealing with an epiphyseal separation, spontaneous in one case and traumatic in the other. The difference is only an etiological one.

Kirmisson states that fractures of the neck of the femur in children are of recent recognition. This scientific conquest is due exclusively to radiography. The lesion has been best studied by Witman. Kirmisson has had five cases. In children, fractures of the surgical neck are intra- and extracapsular. Kocher designates them as subcapital and intertrochanteric. In children we also see incomplete (greenstick) fractures and impacted fractures. According to Poland, epiphyseal separation of the head of the femur cannot occur before the age of four years, because the head of the bone is not osseous before that age. The condition is usually observed in adolescence. Treatment of this form of traumatic coxa vara is prophylactic and curative. One treats the fracture and makes use of continuous extension in moderate abduction or of forcible reduction under chloroform, with or without pegging; or resorts to operative procedures. Operative methods cannot be often utilized. Curative treatment consists of operation either upon the articulation or at a distance. There are different well known forms of osteotomies. For Kirmisson, subtrochanteric osteotomy is the method of choice. Resection of the head and pegging of the neck are exceptional procedures.

Willems distinguishes a cervical coxa vara and trochanteric coxa vara. He would prefer to designate them as juxtacapital and juxtatrochanteric. One is not justified in speaking of a tuberculous coxa vara any more than he would be in speaking of tuberculous clubfoot. It must be borne in mind that symptomatic coxa vara is usually either rachitic or traumatic. To avoid overlooking rachitic coxa vara one should make use of radiography in all cases of beginning coxalgia, and likewise, to avoid overlooking fractures of the neck in all hip injuries radiography should be used. In them we will always be able to use the preventive treatment of coxa vara by placing the limb in marked abduction (45° at least). If the case is seen too late, and if union has taken place in coxa vara, a bloody operation only is useful; and subtrochanteric linear osteotomy is the operation of choice.

Gangolphe states that essential coxa vara of

adolescence is not of traumatic origin. It is characterized by an initial softening of the neck of the femur, associated with a gliding and at times a juxta-epiphyseal separation. These two elements, flexion and displacement of the epiphysis, are synchronous. Flexion must be mentioned first because it is the cause of the diminution of the angle of the femur, and this is responsible for many of the clinical symptoms. Gangolphe would define coxa vara of adolescence as an affection characterized by an initial softening of the neck of the femur and the possible, but not essential, appearance of a fracture with juxta-epiphyseal separation. He presents pictures to demonstrate his point of view. He does not look upon traumatism as an etiological factor. In addition to the clinical symptoms indicated by Frölich, Gangolphe notes the absence of lordosis. The diagnosis calls for bilateral radiography. There is no necessity for an open operation.

Nové-Josserand has had 6 cases of rachitic coxa vara. In 3 patients of 5, 6, and 10 years old, respectively, the deformity remained stationary or became worse. In one case, attempt to cure by forced abduction was ineffective. In three other much younger patients the deformity corrected itself almost completely within a few months. In these three patients, treatment by forced abduction seems to have led to correction by displacing the epiphyseal fragment forward upon the femoral neck. He concludes that the spontaneous correction of rachitic coxa vara is possible and even frequent before the age of 5 years; that this correction seems to be due to growth owing to the oblique disposition of the epiphyseal cartilage; and that treatment by forced abduction may aid correction, but it is not yet positively determined that it does so.

Savriaud believes that, to avoid obscuring a question which is clear in itself, we must not give the name coxa vara to all weaknesses of the femoral neck irrespective of cause. The name must be reserved for the disease described by Müller, an affection which recent works seems only to have confused. In the experience of the author (12 cases), coxa vara is a frequent affection. It is almost as frequent as genu valgum of adolescence, which malformation is self-evident. One of the characteristics of spontaneous coxa vara is that it follows a regular course and always terminates by spontaneous cure. Such obtained in all of the author's cases. Outside of rest, which is valuable especially during the painful period, Savriaud does not in a general way employ the various methods of treatment suggested. He energetically combats the opinion of many orthopedists who see fractures and epiphyseal separation in all cases of coxa vara. No doubt spontaneous fracture and traumatic fractures are met in coxa vara and constitute the first episode of the disease, but these cases are rare when we consider the number of cases of coxa vara which evolve without the slightest indication of traumatism. What is usually observed are false fractures, that is, errors of interpretation made by those who believe that they can make a diagnosis by simply looking at a radiographic picture. There is no difference between the clear space given by the layer of cartilage and the clear space given by a solution of continuity. Numerous mistakes have been made which could have been avoided by careful study of the history and prolonged observation of the patients.

Mouchet believes that the term coxa vara is often misused. It ought to be reserved for the following varieties: congenital, rachitic of early childhood, essential or traumatic of adolescence. In two cases of essential coxa vara he noticed an intermittent subluxation of the femoral head which occurred during flexion of the thigh. He believes that the importance of a preliminary traumatism in the production of coxa vara has been exaggerated. Often the traumatism is not the cause of the coxa vara. It is the outcome of the pre-existing trophic alteration of the neck.

Gourdon has had 15 cases of coxa vara. Two were essential; the backward and downward slipping of the head of the femur was apparent upon the radiographs, and had occurred without any traumatism upon the influence of the body weight. The two patients, 14 and 16 years of age, had an exaggerated physical development for their age. One was hypothyroidic. The 13 other cases were symptomatic, coexisting with the following affections: coxalgia, fracture of the neck, rachitis, and congenital luxation of the hip. Cases of rachitic coxa vara in children recover under the influence of rest and medical treatment. We must establish a distinction between the anatomical type of coxa vara observed in congenital hip dislocations, according to whether the deformity of the femoral neck has taken place previous to or after reduction. Before reduction the coxa vara is trochanteric, with the head of the femur displaced upward. After intervention the coxa vara is also trochanteric in type, but the neck is crushed and one notices an almost complete collapse of the head.

Barbarin had a case of essential coxa vara in a young man of 15 who was being treated for scoliosis. Deviation of the vertebral column was absent; marked atrophy of the gluteal muscle, external rotation, and limping led the author to think that the case was one of coxa vara adolescens. Radiography confirmed this diagnosis. Massage, electricity, and orthopedic gymnastics brought on a cure at the end of a year. This young man has never had pain. Barbarin believes that in the majority of cases of essential coxa vara, whatever may be the intensity of the symptoms or the importance of the limping, one should wait a long time before intervening surgically. In these cases surgical intervention should be exceptional. It is often inefficient. Many cases of osseous rachitis with a limping and waddling gait are neither congenital luxation nor coxa vara, but as has been well said by Frölich, incurvations of the femoral diaphysis with external convexity. Radiographs dispel all doubts. In congenital luxa-

tion there is a possibility of a traumatic coxa vara following reduction, but in a certain number of cases, previous to any attempt at reduction there is a tendency toward inflexion of the neck, which explains the persistence of slight limping with the head in place, in good rotation, and in a cavity of sufficient depth. He has seen a case of traumatic coxa vara in very peculiar conditions. The child was brought to him for marked limping. Clinical examination of the hip proved negative. There was no swelling, no luxation. The parents recalled that the child fell upon his back at the age of three months. Radiographs showed that the head and neck of the femur were completely displaced downward and inward. Perhaps in this case can be found factors throwing some light on the etiology of coxa vara.

Martin du Pan relates observations upon a child 7 years of age who, in falling from a second story, sustained an intertrochanteric fracture of the neck of the femur. He recovered from this fracture with a good functional result. Two months later, in another fall, he sustained a fracture of the same hip in the epiphyseal line. The same treatment was applied, followed by an almost complete ankylosis of the coxofemoral articulation. Subtrochanteric osteotomy practiced six months later restored movements of articulation, and since then the patient has been able to walk without limping. The X-ray picture showed that there had been sustained a new epiphysiolysis with pseudarthrosis. He does not think that in children under the age of 18 months any important information can be had from radiography of the hip. He has observed one case of essential coxa vara following an attack of scarlet fever.

Judet communicates a series of four cases which have the advantage of showing the question of coxa vara under different aspects. A boy 13 years of age had a fall from a ladder, striking upon the external surface of the hip, his weight coming principally upon the great trochanter. The X-ray picture showed a transverse fracture of the middle portion of the neck. The displacement was slight. For two months the fracture was treated by continuous extension by means of adhesive strips. On the eightieth day the patient was allowed to walk. There was no shortening, no limping. The radiograph showed consolidation of the neck, normal shape and normal angle. This therapeutic result shows that these fractures of the femoral neck do not in themselves give a bad prognosis if they are treated from the beginning.

The second observation shows the evolution of a non-diagnosed fracture. The patient, owing to a misstep, had a violent fall upon the hip. There followed acute pain and inability to walk. Rest in bed during two weeks. Walking was then allowed, but it was difficult though improved; limping persisted. Three months after the accident there was 1 cm. of shortening; five months after there was a typical coxa vara, with irreducible external rotation and abduction and 2 cm. of shortening. The radiograph showed the collapse of the neck, which had become horizontal, and the correlative ascension of the great trochanter. In the external portion of the neck in the intertrochanteric region a dark line could be seen, the remains of an old fracture line. Signs of decalcification of the internal segment of the neck were present. Treatment under anæsthesia. External rotation was corrected and abduction increased. Immobilization for one month in a plaster of paris cast, retaining the same attitude as is seen in the second step in the treatment of congenital luxation of the hip (adduction, internal rotation). At the end of a month, removal of the apparatus. The correction of the vicious attitude was maintained, but walking was not allowed until the end of six months. In short, this case was an overlooked intertrochanteric fracture, giving rise to a deformity which, from the anatomical standpoint, was nothing other than the habitual deformity of viciously consolidated fractures of the neck of the femur.

The third observation showed an essential coxa vara, the evolution of which was aggravated by traumatism. A healthy young girl suddenly developed pain and limping in the left hip. Fears of coxalgia were entertained. A few months later, following a misstep, the patient fell upon her hip. She suffered severe pain. Rest in bed 15 days. Aggravation of limping, vicious attitude (flexion, adduction, outward rotation, marked rigidity). The radiograph showed the collapsed neck almost horizontal, and a linear shadow, probably an old fracture line, 1 cm. external to the epiphyseal cartilage.

Observation four: A boy six years of age in good health developed, after diphtheria, bilateral limping, simulating very closely the waddling gait of bilateral congenital luxation; never any traumatism nor any pain. At the age of 12 years, one noticed that the great trochanter was 3 cm. above Nelaton's line at the right side, and 5 cm. at the left. The radiograph showed on the right side a horizontal neck with a decalcified internal portion. The head was in its place in the cotyloid cavity. On the left side the neck had collapsed to an acute angle (80°); the head was as on the right side, at its place. In this case, we were dealing with a bilateral collapse of the femoral neck, due to an as yet unknown influence, perhaps infectious. We cannot say that these cases are traumatic in origin.

Lamy calls attention to a particular deformity of the upper extremity of the femur accompanying a chronic arthritis simulating coxalgia. The most constant characteristic of this affection in 30 studied cases was a subacute arthritis, always recovering without complications and with full mobility; outside abduction, which is slightly limited; no swelling; no abscess; no enlarged inguinal glands; but a hard voluminous head and an upward displacement of the great trochanter; no muscular atrophy; and no trophic disturbance as to length. The radiograph showed a moderate degree of coxa vara, oscillating

between 90° and 120°. The neck was very much thickened in its vertical diameter; the epiphysis was flattened and relegated to the superior external part of the head, and often fragmented at the onset of the illness. No decalcification. Reaction to tuberculin, negative. Some cases have been variously interpreted,— beginning osteomyelitis, arthritis deformans, tuberculosis. The author believes that there is a clinical and radiographic entity that it is important to individualize, because if we are dealing with a coxalgia we immobilize the patient, while in these cases, as has been demonstrated (by Calvé, in 30 cases), the patient is immediately encouraged to walk. J. DUMONT.

SURGERY OF THE NERVOUS SYSTEM

Elsberg: Surgery of Intramedullary Affections of the Spinal Cord; Anatomical Basis and Technique. *J. Am. M. Ass.*, 1911, lix, 1532. By Surg., Gynec. & Obst.

Elsberg observed a number of lesions within the cord substance amenable to surgical treatment He believes that in intramedullary affections—tumors, cysts, bullets, etc.— with proper technique it is feasible to incise the cord substance. He cites instances of isolated cases where surgical measures have been instituted for relief of affections within the cord substance, and presents a technique based on anatomic consideration of the cord anatomy.

He advocates the posterior columns as the most favorable for incision, because of their anatomic position, physiologic character, and the ease with which they can be exposed. Aspiration of the cord for localized collections of fluid — syringomyelia, hæmatomyelia, and cysts — can be done with entire safety provided a fine needle be used and care be taken not to injure the small vessels which enter the cord through the posterior median septum from the pia-arachnoid.

Technique for incision of the cord. A complete laminectomy, i. e., removal of at least three spinous processes and laminæ, is always necessary for thorough exploration. After the dura is incised the pia-arachnoid is incised separately and raised with forceps. In the proper part of the posterior column an incision 0.5 cm. long is made, carefully deepened, and enlarged in the axis of the cord by means of a blunt instrument.

In case of intramedullary tumors, incision is made in the most bulging part of the cord and the tumor exposed. No attempt is made to remove it unless it is superficial and small. The growth should be left to extrude, and removed at a later operation. In case of infiltrating growth, the incision into the cord may be of considerable length so as to obtain maximum decompression effect. L. G. DWAN.

Leriche: Some New Indications for Posterior Radicotomy (Quelques indications nouvelles de la radicotomie postérieure). *Lyon Chir.*, 1912, viii, 434. By Journal de Chirurgie.

Posterior radicotomy, a "difficult but not murderous operation," so far has been employed only in the spasmodic paraplegias, the gastric crises of tabes, and certain unbearable neuralgic conditions. Leriche thinks that it is permissible to extend the sphere of this procedure to certain obstinate peripheral lesions, of trophic or secretory order, "which reveal themselves to analysis as radiculoganglionary syndromes." He cites among others the following:

(1) The intercostal zone, for which the radicular origin has to-day been well established, in certain obstinate, recurring and painful disorders which make surgical treatment legitimate.

(2) Perforating plantar disease, when all peripheral operations have failed and when radicular origin may be assumed; in which case the fifth lumbar and the first sacral root of the corresponding side should be severed.

(3) Certain painful crises of obstinate hyperchlorhydria, independent of any gastric or duodenal ulcer; radicotomy of the fifth to tenth dorsal roots will act upon the sympathetic nerves of the stomach, which are sensitive and above all secretory; its effect approaching that of the elongation of the solar plexus, which is proposed by Jaboulay.

These suggestions so far have been purely theoretical. However, in one case of obstinate herpes, Leriche has cut the fourth and fifth dorsal roots of the corresponding side. The result was one of surprisingly rapid improvement; in 48 hours, the pains had disappeared, the vesicles were withered and desiccated, and the skin, which had been infiltrated and painful, had resumed normal sensibility and appearance. CH. LENORMANT.

DISEASES AND SURGERY OF THE SKIN AND APPENDAGES

Morestin: Voluminous Angioma of the Face Treated by Means of Fixing with Formalin After Ligature of the External Carotid and the Facial Vein (Volumineux angiome de la face traité par la fixation au formal après ligature de carotide externe et de la veine faciale). *Bull. et mém. Soc. d. Chir.*, xxxviii, 1208.

By Journal de Chirurgie.

Morestin presents a young girl 19 years old who has recovered from a voluminous angioma which occupied nearly the whole right half of the face.

After ligature of the external carotid and the corresponding facial vein he made, all about the tumor, a series of punctures, tracing a crown, and injected each with a drop or two of a formalin preparation in one third dilution (one third alcohol 90 per cent pure, one third glycerin, and one third formaldehyde). A second concentric circle more nearly enclosed the tumor. Finally Morestin injected into the body of the tumor a certain quantity of the fixing agent, a drop at a time, until altogether one cc. had been injected.

Under the influence of these injections, the tumor became solid and transformed into a hard mass. To complete the cure it was necessary to make some supplementary injections during the following days (two sittings, at each of which he injected 12 cc. of formalin in one third solution). To-day, after six months, the angioma has entirely disappeared, while the face is symmetrical and presents an altogether normal appearance, without visible scars.

Among the numerous substances which lend themselves to employment as coagulants and sclerotics in the treatment of angiomata, formalin, which has rarely been used in the treatment of these tumors, offers great advantages. It is an admirable fixing agent, capable of acting on the tissues by gradual inhibition. It is remarkably powerful, and for all that not very toxic and very easily handled.

It should be admitted, however, that in the present case its action was very much facilitated by the relative ischæmia and stagnation of the blood which resulted from the ligature of the external carotid and the facial vein. J. Dumont.

MISCELLANEOUS

CLINICAL ENTITIES — TUMORS, ULCERS, ABSCESSES, ETC.

Craster: Conditions Governing the Growth of Displaced Normal Tissue. *J. Exp. Medicine*, 1912, xvi, 493. By Surg., Gynec. & Obst.

Craster has made an incomplete series of animal experiments bearing upon the factors which cause retardation of growth and disappearance of normal tissue when displaced into an unusual environment. It is known that tumor cells do grow under just such conditions. The former problem has, no doubt, an indirect bearing on the latter one.

First series: Transplantations of pieces of skin were made from animal to animal (homogeneous transplantation). It is known that successive transplantations of tumors increase the ease of their growth. This was not found to hold true for normal tissue, as necrosis and disappearance occurred in all cases after three or four removals.

Second series: Fragments of testis used — transplanted under skin of axilla. Result same, but more rapid.

Third series was for determining the receptivity of the host after successive implantations. It was found that later grafts degenerated more rapidly than earlier ones.

Fourth series: To determine the effect of physical conditions. Pieces of skin were buried under the skin, epidermal side out. After 24, 48, and 60 hours, and 4, 6, 8, and 12 days, the overlying skin was cut away and the graft sutured to the skin edges. Only those buried not more than 24 hours grew.

Fifth series: Same experiment, save that the skin was not entirely detached and surrounding skin was slid over it and sutured. These pieces grew, when replaced, up to the 12th day of burial.

Sixth series: Pedunculated flaps were buried within the abdominal wall. The limit of vitality was 16 days. James F. Churchill.

Liek: Treatment of Imminent Traumatic Gangrene of the Extremities. *Deutsche med. Wchnschr.*, 1912, xxxviii. By Surg., Gynec. & Obst.

Application of the method of Noesske, consisting of deep incision to combat venous stasis in threatening gangrene. Noesske applied suction subsequent to the incision. Liek states that the procedure of incisions has long been employed in preventing gangrene of pedicled flaps. Repeated scarification relieves the congestion, and the flap lives. He reports the case of a student whose right ear was almost severed during rapier fencing. Exact suture and 15 superficial incisions placed radially improved the appearance of the ear somewhat. Scarifications repeated the next day and the day after. At the end of three days appearance of ear was normal. The author was similarly successful in saving the fingers in two other cases. He recommends scarification rather than deep incisions in these finger cases, as subsequent adhesions may lead to complaints. Suction was not employed. If, however, the function of the fingers presumably will not return, Liek counsels primary amputation. Tendon suture should be postponed until the life of the finger is assured. E. C. Riebel.

Finney: The Surgical Aspect of Fat. *Boston M. & S. J.*, 1912, clxvii, 495. By Surg., Gynec. & Obst.

In the course of recording several unique cases of his own, Finney took occasion to review the whole subject of fatty conditions in the body, finding that lipomata may occur in any situation, even in the heart and brain. His summary of Marchand's and Verebely's work on the healing of fat sheds light on a subject hitherto neglected. The question of fat embolism is also discussed, especially its occurrence following fracture and crushing of bone, when the transmission of the embolus is usually directly into the blood stream.

Under the general head of Dercum's disease, adiposa dolorosa, Finney was inclined to include the two following cases: A stout man who had suffered from abdominal distress after meals for 5 years. History and examination negative. At operation November, 1909, the mesentery appeared everywhere thicker and fatter than normal. This was particularly noticeable in the mesentery of the transverse colon and omentum, especially on the right half of the body, producing the effect of a marked lipomatosis, which ended abruptly just to the left of the midline, beyond which point the fatty development was about normal. The abdomen was closed without doing anything. Since operation the patient has had the same general symptoms as before, but not quite so severe.

In another similar case, also that of a man who had suffered from pain in the epigastrium for a couple of years, a condition analogous to that of the first case was found in the abdomen. The fatty deposits, though, seemed even more extensive, involving not only the right side of the omentum but the mesentery of the large and small bowel as well. There was no evidence of recent or old ulcer on the gastric or duodenal side. The involved part of the omentum was removed, microscopical examination showing it to be for the most part pure fat, with a few scattered areas of old hæmorrhage.

Finney reports in detail two other unusual cases in which resection of the intestine was necessitated by a purely fatty condition. The article concludes with a discussion of lipoma arborescens.

BERTRAM M. BERNHEIM.

SERA, VACCINES, AND FERMENTS

Graff and Ranzi: The Problem of Immunization Against Malignant Tumors. *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1912, xxv, 278. By Surg., Gynec. & Obst.

Experiments in active immunization against carcinoma and sarcoma. The authors refer to studies in autoimmunization made in 1910. Dungern heats carcinoma material to 56° C. before injection. Rövsing reports the same success by this method in sarcoma. Coca (Manila) used carbolized material. Delbert did not kill the carcinoma cells and reinjected them subcutaneously immediately after extirpation, after trituration with saline solution. Graff and Ranzi repeated this later method upon a woman 46 years of age with mammary cancer (adenocarcinoma). The growth and glands had first been removed in a radical operation. Recurrence after six months. The removal of the recurrence was accompanied by the injection of some of the removed material into the arm. No reaction occurred at the point of injection. Two months later, a tumefaction appeared at the site of injection and a recurrence at point of operation. The tumefaction on the arm was extirpated and found to be adenocarcinoma. The patient died one month later.

Animal experiments were carried on to answer two questions: (1) Is immunization possible with dead tissue? (2) Will a tumor, removed from an animal and reinjected, continue to grow? Answer 1. Chemically prepared material proved inert. Animals injected with living material seemed prior to inoculation to possess some degree of immunity. Injections of blood, embryonic tissue, spleen, liver, all proved negative. Answer 2. The inoculated tumor grew in the majority of the experiments. The experimenters come to the conclusion that injection of tumor material without previous preparation is not justifiable. E. C. RIEBEL.

Gironi: Leucocytosis and the Rivalta Serum-Blood Reaction. *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1912, xxv, 227. By Surg., Gynec. & Obst.

Gironi endeavors to establish a parallel between Rivalta's reaction and the degree of leucocytosis in pathological processes for prognostic purposes. He finds that the intensity of Rivalta's reaction is directly proportional to the number of circulating leucocytes and inversely proportional to the ratio between white and red blood corpuscles. He describes Rivalta's reaction as follows: Several cc. of blood are taken from a vein; part of this is set aside to obtain the serum. Two solutions are made. No. 1 contains 1 drop of a saturated solution of sodium carbonate to 100 cc. of distilled water; No. 2 contains 2 drops of glacial acetic acid in 100 cc. of distilled water. Solution 1 is used to dilute the blood and also the serum (1:100). A rod ½ cm. in diameter is dipped into the dilution and the adherent drop allowed to fall into the acetic acid solution. A distinct white ring is formed. Successive dilutions with 100 cc. of Na_2, CO_3 solutions are made, and the test continued until the white ring is no longer visible. This ends the reaction. The dilution at which the ring was still visible is used as indicator. For example, if the ring is visible in a dilution of 1:1000 and invisible beyond this, 1:1000 will be the degree of the reaction. The procedure should be carried out in a dark room. The precipitating substances are, according to Rivalta, globulines. The blood of normal individuals contains these globulines in constant amounts; these fluctuate, in the terms of Rivalta, between 400 and 600. Pathological processes change the amount. The globulines decrease in grave processes when resistance is low; when resistance is high they

increase, and may reach the enormous value of 2200. A certain analogy exists between this precipitating substance and the antibodies. The reaction is not confined to infectious processes. Gironi considers Rivalta's reaction a great adjuvant to a correct prognosis. E. C. RIEBEL.

Jobling and Bull: Studies on Ferment Action. A Specific Immune Lipose. *J. Exp. Medicine*, 1912, xvi, 483. By Surg., Gynec. & Obst.

It has been demonstrated that there is a close parallelism between agglutinative, hæmolytic and lipolytic substances. Further work has proven that sera of animals immunized to foreign cells have an increased lipolytic power, but this increase in serum lipase has not heretofore been shown to be specific. It is this point that the writers take up.

The first step was to secure a basis of comparison for the non-specific lipolytic activity of the serum of animals before and after treatment with foreign corpuscles. The same animal (rabbit) was used throughout and hen corpuscles were used for immunization. The next effort was to determine if possible, whether this lipase was in any way specific. This was done by comparing the lipolytic action of an immune serum upon the specific corpuscles (hen) and upon corpuscles obtained from other sources (human, rabbit, and guinea pig). The results showed that the lipolytic action was greater for the specific corpuscles, and therefore it may be concluded that the lipoid acts as a specific antigen. Descriptions of technique are given.

The lipolytic action was expressed in terms of n/10 sodium hydroxide, after titrating against phenolphthalein. It is of interest to note that the acids formed by the ferment action were shown to be fatty acids.

Conclusions: 1. Erythrocytes have definite lipoidal constituents peculiar to the species. 2. Certain lipoids and lipoidal combinations act as specific antigens. 3. The increase in serum lipase which occurs upon immunization of animals to foreign cells is, at least in part, specific. 4. This specific lipase plays, no doubt, an important part in specific serum hæmolysis.

JAMES F. CHURCHILL.

BLOOD AND LYMPH VESSELS

Rosanow: Lymphangioplasty in Elephantiasis. *Arch. f. klin. Chir.*, 1912, xcix. By Surg., Gynec. & Obst.

After reviewing the older methods in dealing with this obstinate trouble, such as excision of parts and resections and ligations of veins and arteries, the author enters into a discussion of the method of Handley, published 1908, consisting in making new lymphatic channels to produce better lymph drainage. Handley used silk or silkworm threads. Lanz improved upon this method by the formation of communications of subcutaneous and deep muscular and periosteal lymph channels. Lanz fenestrated the fascia lata and passed flaps of the fascia down to muscles and periosteum. Oppel extended this method to the tibial and crural points. Rosanow shows by a case in which he obtained a good and apparently lasting result that triangular and rhomboid flaps may advantageously bring about a drainage and cure of elephantiasis. He adds excision of exuberant skin. CARL BECK.

Dobrowolskaja: Technique of Suture of Vessels of Small Caliber. *Deutsche Ztschr. f. Chir.*, 1912, cxix. By Surg., Gynec. & Obst.

A report of experiments with dogs (47 cases) for suturing vessels of small caliber. The direction of the line of suture is changed from transverse into oblique, to avoid the narrowing of the lumen after the suture is performed. Indentated, flap-shaped incisions and circular ones with an extra longitudinal incision on both sides are other modes of operation. The indentated incision is the simplest. It is made triangular to the middle of the vessel, one end is turned 90°, the protruding points are then sutured on each side and pulled away from each other, thus approximating the indentation triangles, which are now sutured with continuous suture, intima to intima. The lumina of the vessels are enlarged by this method of incision, and the traction sutures facilitate the uniting of the two ends, as the danger of catching the opposite wall with the needle is avoided. The enlargement of the vessel at the suture point shows a tendency to disappear after a while.

In the experiments with veins, two needles are inserted transversely, one above the other and 1½–2 mm. apart; the vessel is then cut and both needles pulled through together. The portion of the thread which is in the lumen is then pulled up from both ends with crochet needles and cut. The two sutures thus obtained on each end are then pulled to both sides, and the ends approximated and sutured with continuous or interrupted sutures. Human hair or silk 00 and straight needles are used. Complicated incisions and sutures apparently do not endanger the vessels. FREDERICK G. DYAS.

Boothby: Note on the Transplantation of Fresh Venous Segments. *Ann. Surg.*, Phila., 1912, lvi, 409. By Surg., Gynec. & Obst.

The author describes a technique for the introduction of stay sutures in the vein before it is removed for transplantation. The vein is freed for a distance of two inches and ligated at both ends. Close to the upper ligature the vein is grasped by a smooth forceps and a small nich is made close to where the forceps grasps the vein. A stay suture is then introduced from without in and emerging through this nich. In all, six stay sutures are placed by the repetition of this maneuver, and the vein segment is then removed for transplantation, each stay suture of the vein being used to anchor it to the new vessel. Circular suture completes the operation. V. C. DAVID.

Carrel: Results of the Permanent Intubation of the Thoracic Aorta. *Surg., Gynec. & Obst.*, 1912, xv, 245. By Surg., Gynec. & Obst.

In the course of experiments made a few years ago, the author succeeded (the experiments were made with a view of finding a radical treatment for intrathoracic aneurysms) in grafting onto the descending aorta of a dog a segment of vein preserved in cold storage. The animal remained in good condition, and died two years afterwards of a myelitis which was then epidemic among dogs.

In the actual conditions of surgery, the resection of the sac and the graft of a vascular segment on the thoracic aorta would be a complicated and dangerous operation. It would be simpler to insert into the sac a gold tube through which the blood could flow. The thoracic aortas of seven animals were intubated with a glass tube, three with an aluminum tube, and one with a gold-plated aluminum tube. These experiments have shown a new fact: The arterial blood flowed through a glass tube nine or ten millimeters in diameter during periods varying from five to ninety-seven days. No deposit of fibrin on the wall of the tube occurred. Sudden occlusion of the vessel or of the tube took place following a laceration of the aortic wall by the roughly finished edges of the tube.

The permanent intubation of a large artery is a simple operation. It may become practical if the shape and the nature of the tubes be modified in such a manner as to prevent the laceration of the aortic wall. It is probable that the use of smooth-edged gold tubes, or of tubes lined with a vein, will be followed by better results. The question of the application of this method to human surgery will then, possibly, be considered.

POISONS

Cramp: A Consideration of Gas Bacillus Infection with Special Reference to Treatment. *Ann. Surg.*, Phila., 1912, lvi, 544. By Surg., Gynec. & Obst.

In this article, the author presents the subject of gas bacillus infection in a comprehensive and exhaustive résumé of 187 cases, comprising all the known cases on record, including 25 new cases from Bellevue Hospital, New York, 8 of which were treated conservatively, with no deaths. He discusses the etiology, describes the types of wounds in which this infection is frequently found, the manner of the receipt of injury, and states that it is a comparatively rare disease, occurring about once in 644 cases of trauma. Special emphasis is laid upon the treatment of this condition, and a comparison, as regards recovery, is made between those treated conservatively and those upon which an amputation had been practiced.

Eighty-four per cent of the 187 cases, taken as an entity, involved the extremities; 76 were due to compound fractures; 41, the result of extensive lacerated wounds and crushing injuries; 21 were post-operative; 15 had their origin in gunshot wounds; the remainder were due to various causes, as subcutaneous injections, hypodermic administrations, bites of animals, gorings, and obstetrical cases. The gross mortality was 48 per cent. Fifty of these 187 cases were treated by amputation, with a mortality of 30 per cent; while 30 cases were treated by incisions, with either continuous or frequent irrigations, with but three deaths, and these three were the result of complications — tetanus, hæmorrhage, and mixed infection, respectively.

In the matter of treatment, the author considers prophylaxis to be of extreme importance. All wounds caused by great force, especially if contaminated with soil or dirt-covered objects, should be treated as if infected with gas bacilli; they should be left open, freely irrigated, bandaged lightly or not at all, inspected frequently and frequently irrigated and never should be encased in plaster. On the first sign of infection, a smear should be taken, free incisions made, and the wounds immersed in bath or constantly irrigated.

In conclusion, the author says: 1. The incubation is very short. 2. The disease can be classified into superficial and deep, the former easily combated, the latter requiring prompt energetic action. 3. The more conservative methods should be employed in the treatment of gas bacillus infection. 4. Oxygen in some form should be used, preferably hydrogen peroxide. 5. Extreme pain coming on during the first twenty-four hours following injury, and this accompanied by sudden rise in temperature, should excite suspicion. 6. Early recognition is the keynote in combating this condition. 7. Smears should be made from the original wound, and not from some point distant from it.

ELECTROLOGY

Cole: Serial Radiography in the Differential Diagnosis of Carcinoma of the Stomach, Gall-Bladder Infection, and Gastric or Duodenal Ulcer. *Arch. Röntg. Ray*, 1912, cxlvii, 172. By Surg., Gynec. & Obst.

The author discusses in a ten-page article the value of serial radiograms in the diagnosis of many lesions of the right hypochondrium. Not claiming the serial speed in true Röntgen cinematography, he recommends a short series from this and that cycle of the stomach with a technique that permits of fluoroscopic observation before, during, and after the exposures. By an examination of each plate in the series all irregularities in the profile of the bismuth shadows can be identified as either due to peristaltic wave action or not, and a good idea of the mechanical action of the organs can be obtained. In this way the series explains many peculiar appearances seen on any single plate.

Although the radiographic appearances of intra- and extraventricular tumors, ulcer, and other conditions affecting the mechanics of stomach, pylorus, and duodenum are described at some length, and the

differential points classified systematically, the article hinges around the subject of adhesions. The author describes fully the characteristic appearances which may be seen on a series of plates where the action of the bismuth-filled viscera was affected by adhesions to surrounding organs, and contrasts them with the typical appearances seen when tissue masses have invaded the wall of the viscus or exert pressure from without.

The article is accompanied by two dozen half-tone reproductions from radiographs, illustrating the lesions discussed. HOLLIS E. POTTER.

Barjou and Japiot: Radiotherapeutic Treatment of Angiomata (Le traitement radiothérapique des angiomes). *Lyon Chir.*, 1912, viii, 401.
By Journal de Chirurgie.

The conclusions of this article, based upon a report of personal experience with more than 70 cases and containing many well-prepared illustrations, are the following:

1. In nævi pigmentosi, radiotherapy is absolutely contraindicated; if suppression of the nævus should ensue, recourse would be to its surgical extirpation.

2. In punctated, stellar, telangiectatic nævi, radiotherapy gives but slight result and electrolysis should be preferred to it.

3. In the plain vascular nævi ("wine spots"), radiotherapy is in nearly all cases insufficient; of six cases so treated, the authors record three in which this failed, two cases which showed slight improvement, and one complete recovery. This one success was obtained with an infant a few months old, and is probably to be explained by the timeliness of the treatment. On older lesions radiotherapy seems to be without effect; radium gives perhaps better results.

4. Tuberose vascular nævi (angiomata in the proper sense), constitute the formal indication of radiotherapy, at least in young children; 67 cases, variously located, in subjects of this age, were treated by Barjou and Japiot and all have recovered, without scars and with æsthetically perfect results. With adults, on the other hand, the authors have encountered failure and believe that electrolysis is preferable.

To insure a perfect result — that is to say, healing without cicatrices — radiotherapy must be applied "prudently and patiently"; applications must not be repeated until an interval of three or four weeks has elapsed; always avoid radiodermatitis.

CH. LENORMANT.

Poncet and Leriche: Heliotherapy (Heliothérapie). *Bull. de l'Acad. fran.*, 1912, lxviii, 261.
By Journal de Chirurgie.

Heliotherapy was tried by Poncet and Leriche for the first time about twenty years ago. Since then, the authors estimate, they have employed insolation in more than 500 cases.

Where must heliotherapy be undertaken? It can be carried out in all countries. All that is necessary is to prolong the time of each treatment, which may be given in the open country or in the city.

Where should heliotherapy be carried out, if the patient is able to change his place of residence? The air of the mountains and the intense insolation which we can so easily secure in the region of the snows seem to be particularly suited to deep-seated tuberculosis of the bones, and especially to the fistulous forms. All forms of local tuberculosis which supervene during the development of pulmonary tuberculosis should also be assigned for mountain treatment.

On the other hand, adenopathies, superficial tuberculosis, scrofulous affections, rickets, osteo-articular deformities in childhood and adolescence, and all the inflammatory forms of tuberculosis improve better under heliomarine treatment than under high altitude treatment. Poncet and Leriche recommend treatment in which the exposure is progressively increased.

Beginning with only ten minutes, we may increase the exposure, more or less quickly according to individual adaptation, to three hours, morning and evening, and from May till September.

While it is true that patients whose skin becomes pigmented most rapidly are the ones who recover better, the rule is not absolute, and in a number of cases has been found not to hold at all.

Theoretically, every form of tuberculosis will get better under insolation. In practice, however, there are localized forms of tuberculosis, such as renal tuberculosis, upon which heliotherapy seems to have no effect.

It is in tuberculosis of the peritoneum, of the lymphatic glands, and of the bones and joints, that heliotherapy acts most beneficially.

In tuberculous peritonitis of the acid form, the combination of heliotherapy with laparotomy gives results much more rapidly than the sun-bath cure if used alone, and much more lasting than laparotomy employed alone.

In the fibrocaseous forms this combination is likewise the method of choice. On the other hand, the dry forms and the incipient forms may be treated with the sun-bath cure exclusively.

Bacillary synovitis, and even "synovitis with rice bodies," will improve rapidly under exposure to the sun.

Tuberculous adenitis resists heliotherapy when carried out in the interior and treatment of this condition constitutes the triumphs of heliomarine cure.

When the glands are soft and suppurative it is better to puncture and purge them than to rely upon the action of sunlight alone.

In the treatment of osteo-articular tuberculosis, heliotherapy has already effected many cures. Thanks to heliotherapy, Poncet and Leriche hardly ever amputate the lower limbs, and almost never the upper limbs; thanks to it, resection is no longer a conservative but a radical treatment, with very restricted indications. They scarcely ever resect

the knee, as immobilization by a plaster cast and insolation will cure most white tumors which formerly were operated. Resection is to be reserved for the painful forms and such cases where social considerations make it necessary to gain time.

For the foot and for the elbow, resection is superior to every other form of treatment. Dry caries of the shoulder justifies prompt intervention. The other forms of arthritis of the shoulder and the white tumors of the wrist get better under conservative treatment.

The conservative treatment for all joints consists in a combination of immobilization and insolation.

A patient systematically exposed to the sun will get better. Though his recovery may not always be as rapid as with simple immobilization, it is more certain to be obtained, and its quality is better. It is very common to see a complete return of the function of the joint and very often patients have only a partial limitation of movement of the affected joint.

Heliotherapy is a valuable resource for post-operative treatment.

The effect of the action of the sun is also very beneficial in Pott's disease, in tuberculosis with multiple foci, in fungous osteitis with or without fistulæ, and in residual osteitis. Heliotherapy does not act to any great extent upon painful osteitis. If there are sequestra, Poncet and Leriche intervene to hasten recovery.

In the inflammatory forms of tuberculosis (subacute and chronic tubercular rheumatism) the sun-bath treatment is remarkably effective, particularly if given by the seaside.

Even scrofulous affections and rickets will be quite beneficially affected by heliomarine treatment.

In non-tubercular affections, Poncet and Leriche note the remarkable effects which they have obtained in cases of retarded union of complex fractures, in cases of persistent ulcers and infected wounds (in a word, in all prolonged infectious states), and in the most diverse forms of trophic disturbance. CHIFOLIAU.

GYNECOLOGY

UTERUS

Jessup: Hodgkins' Disease Involving the Uterus. *Am. J. Obst.*, N. Y., 1912, lxvi, 401.
By Surg., Gynec. & Obst.

Jessup reports the autopsy findings of a case of Hodgkins' disease in which there is extensive involvement of the uterine wall, with nodules which microscopically are typical of Hodgkins' disease. The increasing eye of the uterus, with enlargement of the lymphatic glands, had earlier occasioned the diagnosis of sarcoma uteri with lymphatic metastasis. N. Sproat Heaney.

Kamperman: A Study of Two Hundred and Twelve Cases of Cancer of the Uterus, with Especial Reference to Early Diagnosis. *Am. J. Obst.*, N. Y., 1912, lxvi, 596.
By Surg., Gynec. & Obst.

Kamperman has studied the 212 cases of uterine cancer which have occurred in the university and private clinics of Dr. Reuben Peterson, and comes to the following conclusions:

1. Cancer holds fifth place as a cause of death in Michigan.
2. The death rate due to cancer during the last five years has increased 15 per cent, while the death rate due to tuberculosis has decreased.
3. Among gynecologic patients, one in every 25 has cancer of the uterus.
4. Five sixths of uterine cancer is primary in the cervix; one sixth in the body.
5. The age limit is from 28 to 75 years, average being 48 years.
6. Carcinoma of cervix is more frequent from 35 to 45 years of age; carcinoma of the body between 45 to 65 years of age.
7. Carcinoma of the body develops over a longer range of years than carcinoma of the cervix.
8. Patients with cancer of the cervix give a history of child-bearing in 92 per cent of all cases; with cancer of the body in 72 per cent.
9. Though more carcinoma in parous women, carcinoma of the uterus may develop in nulliparæ.
10. Heredity has very little part in the development of uterine cancer.
11. Carcinoma of the uterus can be cured by operation in early cases.
12. The early diagnosis of carcinoma of the uterus depends on giving close attention to the earliest symptoms. An increase in the bleeding in a woman approaching the menopause demands a careful investigation and a microscopic examination of tissue from the cervix and body.
13. The first symptom in 73 per cent of cases is an increased menstrual or an irregular intermenstrual discharge of blood.
14. Watery and foul discharge and pain are symptoms occurring at a later stage of the disease.
15. Carcinoma of the uterus occurs in many healthy and robust looking women. Cachexia occurs only in advanced stages of the disease.
16. The radical abdominal operation offers the only absolute cure for carcinoma of the cervix.
17. Carcinoma of the corpus can be cured by a less radical operation. In inoperable cases, temporary relief can usually be secured by a palliative operation.
18. Most of the patients afflicted with this disease die either from some terminal infection or from uræmia.
19. To obtain early diagnosis, the profession as well as the laity must be educated.
20. All women must be taught that the menopause means lessened flowing, and that an increase at this time may signify disease.
21. An organized campaign of education is necessary if more patients are to be saved from cancer in all its forms. N. Sproat Heaney.

Von Winewater: A Rare Form of Carcinoma in a Fibromuscular Polyp of the Uterus. *Arch. f. Gynäk.*, 1912, xcviii, No. 1.
By Surg., Gynec. & Obst.

Woman 66 years of age; 5 normal labors. Menopause 16 years ago. Four weeks ago, hæmorrhage. Fœtid and bloody discharge; in vagina, polyp with pedicle in left uterus wall. Uterus movable, parametria negative. Excision of polyp; vaginal extirpation of uterus. Microscopically, a fibromuscular polyp of the mucous membrane showing in it, and in vicinity a malignant growth. This was partially epithelial, an adenocarcinoma. Question arose as to whether there was not a sarcoma of the stroma present at the same time. Winewater cites the mutation tumor of Ehrlich and Apolant in the stroma of transplanted mouse carcinoma, with development of a sarcoma within the transplanted carcinoma. He concludes that the polyp does not belong to the type of mixed tumor, that it is a diffuse infiltrating carcinoma. The cells, apparently of different type, prove on closer examination to all belong to the same form, showing all varieties, from cells without protoplasm and large transparent nuclei to the forms rich in protoplasm with small and well-stained nuclei. He concludes that the apparent sarcomatous degeneration of the stroma is a misconception. The origin of the carcinoma could not be defined. Most probably it arose in the

pedicle, advancing into the interior and also upon the adjacent mucous membrane. It was striking that carcinoma could be found everywhere in the polyp, while the uterine wall was entirely free from it. Winewater thinks that the œdematous loose tissue of the polyp was less resistent to the invasions of the tumor than the firm strong fibrous wall of the corpus uteri. E. C. RIEBEL.

Bovée: Statistics in Radical Operation for Cancer of the Cervix Uteri. *Am. J. Obst.*, N. Y., 1912, lxvi, 380. By Surg., Gynec. & Obst.

Between 1898 and 1909 Bovée performed the radical abdominal operation for cancer of the cervix 36 times, with a primary mortality of 25 per cent. He reports that 6 cases died within three years from recurrence of cancer, and that 3 have died from other diseases, one eleven years after operation under symptoms of uræmia. Ten cases are not traceable. Eight patients are known to be living without recurrence — one 4 years and 9 months, and 7 over 7 years since operation; in three of these cases it is over 12 years since the operation was performed. He believes that his series, though small, with its 22 per cent of cures of an average of 10 years apiece, is a sufficient argument for the performance of the radical operation. To lessen hæmorrhage he ligates the anterior branches of the iliacs.

N. SPROAT HEANEY.

Macfarlane: Retrodisplacements of the Uterus Treated by the Gillian Method of Round Ligament Suspension. *J. Obst. & Gynec. Brit. Empire*, 1912, xxii. By Surg., Gynec. & Obst.

This article is based on notes of 100 cases operated upon during the past three years. This method of operating was chosen after an extensive experience with ventrosuspension and fixation. Of the series, fifteen had previously had ventrosuspension performed, with recurrence. Baldy's method is unfavorably considered, as there is greater liability to recurrence should pregnancy follow at a later date. The Alexander operation has too limited a range of usefulness, and shortening of the uterosacral ligaments alone is not regarded as sufficient in itself.

The indications for the operation and the symptoms are given as in accordance with generally accepted ideas. As to method, Macfarlane brings the round ligaments through peritoneum, rectus, and anterior fascial sheath, about one and a half inches below the level of the anterior superior spines of the ilia. In but 3 out of 145 cases were the round ligaments found so attenuated as to be unfit for this operation.

Objections to the operation are frankly set forth. Quoting from Lewers, these are formulated as follows:

"In this operation the effect also is to produce two 'pillars' in the abdominal cavity, one on each side, where the round ligaments come through the artificial opening in the peritoneum; and therefore the operation appears to be open to the same objections as fixation of the uterus, only the more so, inasmuch as by it two 'pillars' are produced within the abdominal cavity instead of one. It seems possible also that a space may be left between each 'pillar' and the corresponding groin on each side; if this occurs the effect is to produce a foramen in the position indicated; a possibility therefore exists of partial or even complete intestinal obstruction. Dudley's modification of this operation avoids the formation of any 'pillar' and is to be preferred."

The author's experience gained from three cases subsequently reopened leads him to believe that these objections are infinitesimal.

As to results: Macfarlane's cases show no mortality, the rapidity of convalescence is as great as in any other form of uterine suspension, and the morbidity has been practically negligible. In one case thrombosis occurred, but with ultimate and excellent recovery; and in another a recurrence of the malposition took place some days after operation in a patient who developed an acute pneumococcal pulmonary and wound infection.

Sixteen of the cases subsequently became pregnant, and no difficulty was experienced at the time of delivery. One case aborted at the third month, and one at the sixth as the result of hyperpyrexia, the febrile attack being of unascertained cause. The uterus in every case involuted normally, and there has been no recurrence of the displacement. All the patients complained of pain in the early months. Bladder irritability was noticed in but three cases; all cases of mobile retroflexion have been cured of symptoms and remain well. Complete relief is experienced by 85 per cent of those patients in whom complications of an inflammatory nature were discovered; 10 per cent continue to have some pain, and 5 per cent have no relief. Conservative surgery was practiced as far as possible, with apparently satisfactory results.

CAREY CULBERTSON.

Mayo: Surgical Treatment of Prolapse of the Uterus and Walls of the Vagina. *J. Am. M. Ass.*, 1912, lix, 1421. By Surg., Gynec. & Obst.

From September 30, 1889, to September 1, 1912, 628 women were operated on in St. Mary's Hospital, Mayo Clinic, for prolapse of the uterus.

Group 1 includes those cases occurring during the child-bearing period in which there is supravaginal hypertrophy of the cervix. They should be treated in a manner not to interfere with the child-bearing function, because many of these patients will continue to bear children in spite of the prolapse. High amputation of the cervix, not closer than one half inch to the internal os, in connection with the external shortening of the round ligaments and some type of perineal operation which elongates the posterior vaginal wall, will readily cure at least 96 per cent of these patients. It has been said that the permanence of an operation on the round ligaments

depends on whether or not there are to be future pregnancies. It should not be forgotten that the round ligaments are non-striated muscle fibers and part of the wall of the uterus itself, which has been projected forward to the spine of the pubes. The round ligaments undergo hypertrophy during pregnancy and involution following pregnancy. We have not found that repeated pregnancies have influenced the ultimate results in these cases.

Group 2 includes the cases which ordinarily occur between the ages of 45 and 55, in which the uterus is not atrophic and the cystocele is the most striking feature. The Watkins-Wertheim operation is the most satisfactory treatment in these cases. The principles of this operation are correct inasmuch as the bladder is first separated from the vagina and then from the anterior wall of the uterus, thus restoring the bladder to the abdominal cavity and drawing the fundus of the uterus forward into a complete antiversion, with suture to the anterior vaginal wall so that the bladder will lie within the abdominal cavity on the posterior wall of the uterus. When the bladder fills with urine it exerts upward traction instead of downward pressure. Since in many of these cases the prolapse began in the child-bearing period, and supravaginal elongation of the cervix is present, amputation of the cervix may be necessary, as it may be too long to lie in the hollow of the sacrum without flexion. If the uterus be not sufficiently large, that is, approximately near the normal size, this operation will fail.

Group 3 is composed of the senile cases in which the uterus has undergone advanced atrophy and, together with the vagina, cystocele, and rectocele, lies outside the body. The most generally useful treatment in these cases is one termed the "vagino-pelvic fixation operation." Removing the uterus, and usually the ovaries and tubes, the round and broad ligaments can be secured high in the pelvic cavity, and that part of the vaginal wall which is attached to the cervix outside the body is fixed to the round and broad ligament stumps inside the pelvis.

Tait's perineal operation has two important principles. First, it uncovers the muscles and structures which had been separated, so that they might be accurately sutured together. Tait opened the perineum as one would open the abdomen in order to gain access to the parts to be repaired. The second principle is one which I believe has not been generally recognized. The mucosa is lifted well off at each angle, but the dissection is not made deep in the midline. The apex or crest of the rectocele is then pushed upward and held inside the vagina; this traction draws on the torn fibers of the external and internal sphincters of the rectum. In closing, the lateral muscular structures were brought together and united with the torn sphincter fibers, restoring proper direction to the anal canal. This upward and inward traction of the crest of the rectocele also elongates the posterior vaginal wall. Curiously enough, the worst type of rectocele may not be associated with prolapse, but exists as a true rectal hernia through the perineal body, in which a circular opening with well-defined margins will be found just above the external sphincter. The sac lined with mucosa may be the size of an egg or an orange as it projects from the vagina. This condition is best corrected by the method of Noble — separating the rectal structures from the posterior vaginal wall through the perineum in the usual manner. The sac is then drawn out through the anal orifice after the sphincter has been thoroughly stretched. Following its extrusion it is caught in a clamp and cut away. With a running suture of catgut the mucosa is closed, the suture line left protruding from the anus until it retracts.

Polk: Suprapubic Plication of Vagina and Conjoined Shortening of the Uterosacral and Broad Ligaments. *Surg., Gynec. & Obst.*, 1912, xv, 322. By Surg., Gynec. & Obst.

The author stated that, after trying all the accepted methods, he had found this more successful than others had been in his hands. He submitted 18 cases as examples. In every case the uterus rested entirely without the body or as far as midway through the cervix, and one case was of prolapse of the vagina and bladder following removal of the uterus years before for procidentia. Treatment by pessary had been tried in all of these cases. All of the patients did well under operation, making good recovery from the operation, and the ultimate results to date are all that could be desired. Eight of the cases had been operated upon two years before; more than half, a year before; and the remainder within the year. He found that patients bore separation of the bladder from the vagina with little shock, and that there was little hæmorrhage, that which did occur being easy to control. Therefore the operation could not be considered one of great risk. The vagina is rendered surgically septic by washing with tincture of iodine. A free opening is made in the abdomen between the umbilicus and symphysis. The uterus is drawn upward, taut. The bladder is separated from the entire front of the vagina down to and beneath the trigone. The anterior wall of the vagina is plicated by four or five kangaroo tendons, passed through the lateral wall of the vagina across the anterior face to the opposite lateral wall, through which the suture is also passed. By tying these firmly, the anterior wall is turned in. A kangaroo tendon, one on either side from before backward, is passed through the broad ligaments, then around the uterosacral ligament from an inch to an inch and a half from the uterus, according to the amount of slack. The suture is returned through the broad ligament just above the uterine artery and buried in the anterior face of the uterovaginal junction. In passing through the broad ligament it passes half an inch below its initial track. These two sutures are firmly tied. The round ligaments are seized about an inch and a half from the uterus, brought together,

and fastened down at the uterovaginal junction. This may be done separately or by means of the same sutures which encircle the uterosacral fold and base line of broad ligament. If the fundus needs to be brought forward, seize the round ligaments one inch further out and attach that point to the uterus where the ligaments spring from its side. The peritoneum which belongs to the anterior face of the broad ligament is brought well down into the uterovesical space so as to make the fossa between the uterus and bladder as shallow as possible. The ridge which represents the anterior wall of the vagina is now treated from the direction of the vagina. If there is too much tissue, some may be cut away and the proper surfaces stitched together. If there is not, the surfaces are brought into apposition by through-and-through sutures, passed successively from below upward, or vice versa, as is more convenient. The ureters are readily avoided by making sure that separation of the bladder from the vagina is complete and that a like separation of the lateral wall of the vagina is secured. The main arteries are avoided by being outlined by palpation as the sutures are passed.

ADNEXAL AND PERIUTERINE CONDITIONS

Voronhoff-Jayle: Grafting Ovaries (Le greffe des ovaires). 26th Cong. l'Ass. fran. de Chir., Paris, Oct. 9, 1912. By Journal de Chirurgie.

Voronoff reports the results of a series of experiments on ovarian grafting. He chose young ewes for these experiments, because their genital organs most closely approach those of woman. After double castration he engrafted them with an ovary taken from another sheep. The ovary was taken sometimes from living animals, sometimes from sheep which had been dead for two hours. Voronoff has kept in all only four of these sheep, which were operated as long as six months ago. He presents the genital tract taken from one of them, operated upon March 12th and killed the 26th of last September.

The appendages on one side of this specimen are altogether missing. On the other side we find the original tube and the engrafted ovary. A thread of fine cicatricial tissue which surrounds it represents the vestiges of the sutures made to fit the grafted ovary into the exact place occupied by the original. This ovary is normally developed and possesses abundant vascularization. The transplanted organ is of such normal appearance that, were it not for the cicatricial suture attesting its origin, one would not imagine that it had been grafted. Thus heterogeneous grafting of an organ as highly differentiated as the ovary has become realized. Its position in relation to the ampulla of the tube permits the migration of the ovule toward the uterus and secures physiological function, as one of the sheep operated upon has since become pregnant.

Voronoff attributes the success of these heterogeneous graftings in large measure to the fact that he has directed his latest experiments to animals of the same variety and having the same parent. Thus, he has always failed when grafting an ovary from one ewe to one of another species; these animals were killed at the end of five months and no trace was found of the ovary, which had been completely absorbed. The quality of the blood of the receptor and of the donor, from the point of view of hæmolysis and agglutination, must therefore be taken into consideration when we pass from experimentation to human surgery. Heterogeneous grafting of a complex organ cannot succeed except in individuals having the same quality of blood.

Jayle claims that the time which has elapsed since the graftings were made has been too short for practical application. The difficulty is to obtain grafts which are permanent, as the economy of the body tends to absorb all inert tissue which is introduced. Jayle has experimented along these lines for fifteen years, and believes that he was the first one in France to attempt this work; but he claims never to have obtained permanent results. He deems it necessary that an interval of about five years must have elapsed in experiments upon such animals as the sheep and the dog in order that we may determine the final results of ovary grafting.

In 1897, Jayle presented to the Anatomical Society of Paris a small series of animals upon which he had practiced three classes of ovarian grafting: (1) grafting in the same female from one point of the peritoneum to another; (2) grafting the ovary of one animal into an animal of the same species; (3) grafting the ovary of an animal of one species into an animal of another species.

The question of ovarian transplantation from one species to another is of the greatest interest, for it aims at control of the law of immutability of species and seeks by a new means to produce mongrels. Jayle has not succeeded, but he believes that we should persevere, as the question is too new to accept the lack of success as conclusive proof.

Jayle finds no practical advantage in grafting the ovary from one point of the peritoneum to another point of the organism. In general, these grafts disappear rapidly, because their vascularization, though not impossible, is always quite difficult to insure. Jayle declares that he does not understand the idea of those surgeons who remove the ovary from its normal place to put it into another, whether it be in the peritoneum or in the skin; since if an ovary is to be conserved, what better than to leave it in place, with its normal vascularization.

Ovarian grafts from an animal of one species into another animal of the same species, or from one woman into another woman, no longer have any great practical interest.

In animals, Jayle has not obtained fecundation. If others have been successful in that respect, the fact remains, nevertheless, that success has not been easily insured. In woman — in such exceptional cases where one is obliged to venture everything to obtain fecundity — one might have recourse to the operation, but only after making a minute examina-

tion of the patient for tuberculosis, syphilis, and various infectious intoxications. The rare observations of success which have been published on this subject are by no means convincing; it is only necessary to study the original literature on such experiments for one to draw his own conclusions.

If the point which Voronoff makes concerning the selection of the donor in performing an ovarian graft is substantiated by further study, a new difficulty will arise in its practical application in woman. Voronoff insists that both ewes must come, at least, from the same herd, having a single bell wether, and if possible from the same mother, if successful results are to be obtained. In transferring this principle of choice to the human species, the donor and receptor must come from the same family, and this would not contribute toward its propagation.

J. DUMONT.

McIlroy, The Physiological Influence of Ovarian Secretion. *Proc. Roy. Soc. Med.*, 1912, v, 342. By Surg., Gynec. & Obst.

This consists in a rather exhaustive review of the above subject, taking it from many standpoints, and the second part consists of experimental work. This experimental work can best be summarized in the words of the author.

1. "The ovary controls the nutrition of the uterus and other reproductive organs, since removal of both ovaries causes atrophy of the muscular and glandular elements of the uterus, etc., the degree of atrophy being in direct proportion to the length of time which has elapsed since the operation. There is also a diminution in the uterine blood-vessels, and a tendency to atheroma — a condition very closely allied to fibrosis of the uterus in the human subject. Menstruation and œstrus do not occur after complete removal of both ovaries. In young animals, after oöphorectomy the infantile type is maintained."

2. "Removal of the uterus, or retention of uterine secretion, does not affect the functional development of the ovaries, seeing that the elements of the ovary are well preserved after hysterectomy and ligation of the uterine horns. Retained uterine fluid does not counteract the atrophy of the uterus which takes place after removal of both ovaries. There is thinning out of the uterine wall at the point of greatest distention, and no compensatory hypertrophy has been observed."

3. "Removal of one ovary causes compensatory hypertrophy of the other in the anœstrous state."

4. "That the interstitial cells perform the chief rôle in the maintenance of the nutrition of the uterus is evidenced by (*a*) the survival of these cells in grafted ovaries, (*b*) the follicles becoming absorbed or cystic, and (*c*) the fact that no atrophy of the uterus occurs when these cells are present. The interstitial cells become functionally active during pro-œstrum, as shown by their being enlarged and their cytoplasm becoming infiltrated with a lipoid substance (in female dog). That the corpus luteum is the part of the ovary which exerts the most active influence upon the body as a whole is shown by the fact that corpus luteum extract, when injected, causes rise of the general blood pressure."

5. "From the result of one experiment it was found that the ovaries do not play such an important part in the elimination of calcium as is supposed, since after castration the calcium output was increased, whereas it was diminished as the result of administration of corpus luteum extract."

6. "Removal of the ovaries in rabbits causes an increased deposit of fat in the tissues of the body."

C. G. GRULEE.

Wilson: Gelatinous Glandular Cysts of the Ovary and the So-Called Pseudomyxoma of the Peritoneum. *J. Obst. & Gynec. Brit. Empire*, 1912, xxii, Oct. By Surg., Gynec. & Obst.

This article is a critical review of the literature on the subject of gelatinous cysts of the ovary, with reference particularly to the pseudomyxomatous variety, supplemented by notes from records of six typical cases. Of 331 tumors of the ovary, 144 were glandular pseudomucinous cysts; and of these, aside from the 6 typical cases, there were 5 others in which the contents were gelatinous, although no extensive effusion into the peritoneal cavity had occurred.

"In 4 out of my 5 unruptured firm gelatinous cysts, the patients were single women; the fifth was a vi-para. Three of the women were under 40. . . . In most of the cases a certain quantity, usually small, of free soapy exudation was present in the peritoneum, although no rupture or perforation of the cyst could be made out. One of the cases is of peculiar interest in that, after removal of a right-sided cyst, a second one of the weight of three pounds grew in the left ovary within five months; the left ovary had been observed at the first operation to be shriveled and senile in appearance. The second cyst had burst, discharging a large quantity of mucoid fluid into the peritoneal cavity. Both cysts were proved by the microscope to be simple glandular in structure. This case was of further interest in that the patient had a fibromyoma, and later developed carcinoma of the body of the uterus, of which the first symptom appeared within a year of the second ovariotomy, the patient dying about six years later. The removal of the two ovaries caused regression of the fibroid, but did not prevent the subsequent malignant development in the uterus, an important condemnation of the operation of double oöphorectomy for uterine fibroid.

"Among the six ovarian tumors in the five patients under consideration, three had twisted pedicles, an occurrence that was not noted once in my six cases of pseudomyxoma, although it may have been present in Case 1. In another of the unruptured cases, the tumor grew 25 years after a cyst of the other ovary had been removed."

Pseudomyxoma of the peritoneum occurs oftenest between the ages of 40 and 60. Wilson's youngest

patient was 38 and the oldest 74. The affection is most frequently found in multipara. Menstruation usually is not affected, but most of the women have already passed the menopause. The clinical course is rapid, the abdomen becoming distended in a comparatively short time. The time between the appearance of the first symptom and the operation was never longer than eleven months, and less than four months in two cases. Enlargement is usually the first sign, though pain may precede. Œdema of the legs was first noticed in one case. The physical signs are those of a large ovarian cyst, the outlines being more or less indefinite. Tenderness on palpation is rare.

"Pathologically, the ovarian cyst in the cases under consideration is a multilocular one, made up at its base of a very large number of small and medium size loculi, from the size of a millet seed or less to that of a walnut. The loculi are filled with the characteristic gelatinous material, transparent, homogeneous, and either colorless or faintly tinged yellow or green; and they are divided by very delicate transparent connective tissue septa, thinner than tissue paper, and lined by columnar secreting epithelium, which is the source of the gelatinous material. This is arranged in a single layer, and is seen in different stages of rest and activity.

"The pedicle of the cyst was well formed in four cases, in one of which there was a hæmatoma around the ovarian vessels, for which no cause could be made out. In one instance the growth had invaded the broad ligament, and at the operation there was some difficulty in clearing the disease of the lower end. In the sixth instance there was a pseudointraligamentary pedicle, the cyst having developed in an ovary bound down by old firm adhesions.

"In none of the six cases was the second ovary affected by the new growth; in the case with pseudointraligamentary development, the appendages of the opposite left side were fixed among themselves and to the side of the pelvis and back of the broad ligament by old dense fibrous adhesions; these had involved the ureter, leading to its dilatation and to hydronephrosis. In one case there was a dermoid loculus in the midst of the ovarian cyst."

The involvement of the peritoneum was shown by Werth in 1884 to be secondary to rupture of the cyst and escape of the contents, a plastic chronic inflammation due to the presence of foreign matter in contact with the serous membrane. Thus the term chronic pseudomyomatous peritonitis is justified for the majority of the cases. True implantation metastases are found, living and active strands of the secreting epithelium escaping from the cyst and becoming attached to any part of the surface of the peritoneum. These implantations are not necessarily confined to the peritoneal cavity, as in one case (Taylor's) a large metastatic growth was found in the middle lobe of the right lung.

The prognosis is unfavorable. "Laparotomy was performed in 33 cases of the cases collected by Strassmann, and 16 of the patients died within four weeks; in 8 of the fatal cases there were no traces of sepsis or of purulent infiltration at the autopsy; the patients died from the fourth to the ninth day, apparently from toxæmia due to the breaking down of the gelatinous material. Only 15 cases were cured by the laparotomy, and of these not more than 5 made a smooth convalescence; in the others there was more or less fever, and in 3 threatened ileus. The outlook in cases of this nature was, therefore, very unfavorable; the primary mortality was great, and in those which recovered recurrence frequently took place.

"The outlook as regards freedom from recurrence must always be doubtful, even in the favorable cases where no epithelial transplantation has been discovered at the operation; small buds may lurk unobserved in some of the recesses of the peritoneum, may remain latent for a longer or shorter time, and then burst into renewed activity. . . . As a rule there is recurrence, often after many years."

Of Wilson's cases, 5 recovered after operation; one of them, in whom there were true metastases, remained well for more than two years, and then died of a psoas abscess of unknown origin; many small cysts were present in the pelvis, so that renewed active growth might have set in at any time. Of the other cases, 3 remain well after more than eight, seven, and two years respectively; while the fourth was operated upon as recently as November, 1911. CAREY CULBERTSON.

Chavannez: Cystic Tumors of the Ovary with Gaseous Contents (Sur les tumeurs kystiques de l'ovaire à contenu gazueux). 26th Cong. de. l'Ass. fran. Chir., Paris, Oct. 7, 1912.

By Journal de Chirurgie.

The author outlines the principal characteristics of ovarian tumors with gaseous contents.

From the point of view of pathology two hypotheses present themselves: either these gases originate in the intestine or in loco. The first theory may explain those cases in which the tumor is of old standing and is shown to be without well-marked local and general symptoms. On the other hand, when the development of the disease is rapid, when intestinal adhesions are either absent or not very marked, and when operation shows the absence of perforation, it is much more logical to assume that microbic infection has caused the formation of the gases in loco.

Differential diagnosis must eliminate tuberculous peritonitis and foci of suppurative peritonitis, associated with gas formation.

Jayle reports a case of gaseous cyst which he has observed in a woman 40 years of age, who had for some time been treated with electricity. The patient was affected with a generalized suppurative peritonitis, high temperature, and a general adynamic state. The operation proved the existence of pelvic tumor, which had at first been taken for a cyst. When punctured, the tumor emitted fœtid

gases. When the pocket was opened it gave forth liquid matter, so that the question arose as to whether the tumor was not an overdistended pelvic colon. The pocket had forced the uterus to the left and beneath itself, so that it was at first not easy to make out relations. Nevertheless the operation was carried out successfully. It was finally shown that it was a cyst of the right ovary which contained gases, adhered on all sides to the pelvic organs, especially to the anterior surface of the rectum. It presented neither an aperture nor any point where gas could have gained entrance from without.

Recalling the investigations which he had made and presented to the Anatomical Society in November, 1893, on the pathogenesis of rectovaginal fistulæ after vaginal hysterectomy, Jayle thinks that the etiology of gaseous cysts of the ovary is very simple; the gases are due to micro-organisms which come from the intestine by way of more or less extensive adhesions of the cyst wall with some part of the intestine, more particularly with the pelvic colon or the rectum. J. DUMONT.

Lamoureux: Diffuse Peritonitis Due to Rupture of the Pyosalpinx (Les péritonites diffuses par rupture de pyosalpinx). *Arch. gén. d. Chir.*, 1912, vi, 1005. By Journal de Chirurgie.

Rupture of a pyosalpinx is a rare accident, so that the author has been able to gather but 27 cases, one of them being his own.

The onset ordinarily is sudden, coming upon a woman in seemingly perfect health, either slowly, in the course of a few days, or in an acute form. Sometimes the patient feels a sensation of cracking, but is without any violent pain. The pains are originally pelvic or iliac, but quickly become generalized over the whole abdomen, and are accompanied by vomiting and constipation; the classic picture of shock is established; fever is the rule, and the abdomen, which in the beginning was retracted, becomes tympanitic and hard. Acute superficial tenderness is present.

Vaginal examination shows the presence of more or less extensive pelvic lesions. Left to itself, this peritonitis may become encysted, but nearly always it is generalized.

Diagnosis can rarely be made. One would think either of peritonitis of appendicular origin or of a peritoneal involvement due to rupture of an ectopic pregnancy.

The rational treatment of diffuse peritonitis due to rupture of the pyosalpinx must respond to two conditions: it must be timely, and must have as its principal aim the suppression of the cause of the peritonitis. The operation must be timely; mortality does not exceed 50 per cent when the intervention is made within the first 12 hours; it reaches 80 per cent after 40 hours.

The perforated tube may be removed alone or together with that of the other side, or together with the appendages of the other side and the uterus by means of a supravaginal hysterectomy. The minimum operation being all that is necessary (Lejars), total hysterectomy is to be condemned. The more conservative method should be employed in those cases where the extent of the lesions of the small pelvis renders enucleation of the appendages either difficult or impossible.

The method of choice consists in pure and simple ablation of the appendages.

Lavage of the peritoneal cavity is rejected by a great majority of authors, and drainage is what is most commonly employed.

The physician must insist above all on post-operative care, the position should be a half sitting one; for the combating of collapse and intoxication, camphor oil or normal salt are employed; for combating intestinal stasis, if the case is exceedingly grave, enterostomy under local novocaine anæsthesia may be resorted to; and, finally, vomiting should be treated by gastric lavage, when twenty-four hours have elapsed since the operation.

J. DUMONT.

Stark: Dermoid Tumors of Both Fallopian Tubes. *J. Obst. & Gynec. Brit. Empire*, 1912, xxii, Oct. By Surg., Gynec. & Obst.

Stark here reports a case of tubal dermoid cyst, first showing that Bourelly in 1910 was able to discover but three such cases by a comprehensive survey of the literature. The author's patient was 38 years of age, had been married ten years and never pregnant, and menstruated regularly but profusely and with pain. She came to the physician for sterility. Examination revealed fixed doughy swellings on either side of the uterus, low down in the posterior pelvis, which were taken to be enlarged ovaries. Upon operation it was discovered that these masses involved the tubes, one on either side. The right tube was removed; the left tumor was resected only, leaving a short potent Fallopian stump on that side. The masses were cystic in character and contained sebaceous matter, hairs, and bony plates. Each mass was about the size of a tangerine orange and was absolutely separate from the ovaries and broad ligaments, which were normal. The right cyst involved most of the tube; the left was in the outer third of its tube, the uninvolved portions of which were potent.

The other three cases are briefly as follows: (1) Pozzi's case. Insufficiently detailed. Dermoid tumor of the tube with sebaceous glands, hairs, and adipose tissue. (*Traité de Gynec. Cliniq. et Opérat.*) (2) Jacob's case. A nullipara of 48, with fibroids of the uterus and adnexal inflammation. At the outer end of the left tube was found a lemon-size tumor containing sebaceous matter and bone, not involving the broad ligament. The ovary was normal except for several small serous cysts. (*Soc. Belge de Gynéc., 1899–1900.*) (3) Notto's case. A woman of 25; menstruation regular. A pedunculated tumor the size of a large orange was found, growing from the right tube near the uterine cornu, and containing

a thick white sebaceous material. The ovary of this side contained a small cyst.

Stark considers his case unique in that it is apparently the first one on record of bilateral dermoid cyst of the Fallopian tubes.

CAREY CULBERTSON.

VAGINA

Basset: Treatment of Primary Epithelioma of the Clitoris by Operative Surgery (Traitement chirurgical opératoire de l'epithélioma primitif du clitoris). *Rev. de Chir.*, 1912, xlvii, Oct.

By Journal de Chirurgie.

The treatment of this form of cancer is guided by the general rules that goven surgery of cancer, namely, timely extensive intervention which is logically anatomical; that is to say, the corresponding lymphatic region is extirpated at the same time. Basset's investigations have led him to conclude that it is necessary to remove two lymphatic radicles on the right and on the left, together with the region of the clitoris — a superior radicle which, through the inguinal canal, leads to the external genitocrural gland; an inferior radicle which leads to the deep inguinal glands, to Cloquet's gland, and to the external genitocrural gland.

The incision comprises, therefore, a double inguinal tract which leads to the base of a trapezoid, encompassing the region of the clitoris, as it passes a few millimetres below the urethral meatus.

The large opening of the inguinal canal permits detachment of the superior radicle. Section of the crural arch, of the vascular epigastric plexus, and of the round ligament permits the detachment of the inferior radicle. It seems, then, as the author says elsewhere, that it would have been of advantage to cut the round ligament and the epigastric vessels directly after the detachment of the superior radicle. This operation is repeated on the other side, and thus the anatomical levels of the inguinocrural region are successively restored. Extirpation of the region of the clitoris comes last; it is made above and below by cutting close to the symphysis in order to remove, together with the tumor, an anastomotic plexus of lymphatic tissue. The wound is closed by a flap or by autoplasty.

As the operation is long and serious, although the author gives the preference to its performance in one stage, we must admit that in certain cases it may be done in two stages. The order in which the author has chosen to execute these two stages is, it seems to us, not less subject to criticism than the order frequently adopted in extirpation of cancer of the tongue, to which the author alludes. To remove the glands in the first stage and leave, even if only for a few weeks, an epithelial tumor, which frequently is infected, is to court danger. For by way of the many lymphatics which have been cut, this tumor may divert the cancer cells and agents of infection of the principal focus of infection into the cellular tissues which have been deprived of their glands. It seems to us that we should more certainly avoid this immediate infection and subsequent relapse if we were to relieve the patient of the tumor in the first stage of the operation; and, all things considered, this removal of the tumor must still remain the principal object of the operation.

I. OKINCZYC.

MISCELLANEOUS

Williams, Murray, and Wallace: An Investigation of the Coliform Organisms in the Healthy and in the Infected Urinary Tract of the Female. *J. Obst. & Gynec. Brit. Empire*, 1912, xxii.

By Surg., Gynec. & Obst.

In introducing their subject the authors express a doubt as to the correctness of certain statements appearing from time to time in medical literature. Their reasons for undertaking this study is best expressed by quotation.

"The general impression left after reading the most important papers on the subject is that febrile disturbance arising after a gynecological operation, and associated with the presence of a coliform organism (i. e. a gram-negative, short, motile bacillus) in the urine of the patient, is, in most cases, due to that organism; and, further, that a stock colon vaccine will greatly ameliorate the patient's condition.

"Statements such as these appeared to us to be based on two assumptions; firstly, that B. coli is absent or very rarely present in the bladder of the healthy woman; and secondly, that all strains of B. coli are alike, and they are, in fact, as much a definite entity as the bacillus of plague. We thought that these assumptions, if wrong, would of necessity lead to considerable error, and we therefore set ourselves to examine the question."

The discussion is accompanied by a series of charts and tables giving the detailed findings of the cases cited. Conclusions are arranged in the following order:

1. Typical bacillus coli (MacConkey) is found in a considerable percentage of females' urines taken under conditions precluding all source of contamination. Ordinarily they have no apparent pathological significance.

2. Although in our cases culturally identical, agglutination reactions prove that there are wide biological differences between the various strains isolated.

3. As male urines very rarely show the presence of this organism, it is reasonable to suppose that the usual path of entry is by way of the perineum and urethra.

4. When infection of the urinary tract is present, the coliform organisms isolated show great variation in cultural reactions. Vaccines, therefore, should be autogenous, and since the same case may show the presence of more than one organism, vaccines should be prepared from many colonies.

5. Vaccine treatment of coliform infections is of pronounced benefit. In acute cases, if due care be

taken and the doses and intervals carefully regulated, a very marked improvement can be very speedily produced in the vast majority of cases; but to obtain this very close supervision is necessary. A first dose in acute cases should never exceed ten millions, the intervals must be short, and if there be any doubt, opsonic indices should be taken.

6. Subacute or chronic inflammations are equally hopeful, provided that the doses are suitably increased, that it is appreciated that the treatment should be coterminous with the presence of pus in the urine, and that this may be a somewhat lengthy process.

7. Cure does not necessarily imply the sterilization of the urine. CAREY CULBERTSON.

[Monograph.] Sigwart: The Technique of the Radical Operation of Cancer of the Uterus.[1] J. F. Bergmann, Wiesbaden, Germany, 1912. By Surg., Gynec. & Obst.

HISTORICAL INTRODUCTION

Sigwart begins with the description of the first abdominal hysterectomy done, by William A. Freund, on January 30, 1878. It was a cancer of the cervix in a woman 62 years old. The technique then practiced is fully described, and also the fact that he made use of pelvic elevation, with which the name of Trendelenburg has been intimately associated since 1890, Trendelenburg, by his writings, having popularized pelvic elevation, or, as it is now commonly called, "Trendelenburg posture." But because of the high primary mortality during the early period when the operation was practiced, two thirds of the women operated upon dying of shock or of peritonitis and sepsis, the operation did not receive general adoption; especially so since it was shown that the freedom from recurrence, which was hoped for, was an illusion. Freund's first patient died of recurrence one year after operation.

The consequence was that operators turned to the vaginal operation of Czerny (1879), which gave a comparatively low mortality.

The technique employed by Freund at his first operation briefly was: Irrigation of the uterine cavity with a 10 per cent carbolic acid solution; pelvic elevation of the patient, so that the head was lower than the pelvis; opening of the abdominal cavity from the symphisis to the umbilicus. The intestines in the true pelvis were held back by an abdominal gauze pad, and then the uterus was pulled upward by a suture passed through the body. Next, the broad ligaments were tied off in continuity, in three parts — first the tube to the ovarian ligament, then the ovarian ligament to the substance of the round ligament, and finally the base of the broad ligament; the last suture was carried down from the round ligament, through the anterior vault to Douglas' pouch. After this the bladder vaginal vault, and back again through the posterior vaginal peritoneum was cut through, the bladder pushed off, and the anterior vaginal vault opened. After cutting through the posterior peritoneum (Douglas' peritoneum), the posterior vaginal vault was similarly opened, and then the three ligated broad ligament parts severed. In this way the uterus was severed from all its attachments. After irrigating the pelvic cavity with carbolized water, the sutures were drawn tautly through the vaginal opening, which brought the anterior and posterior peritoneal surface to coaptation, so that a row of interrupted sutures held them together.

Different modifications are mentioned, devised by various operators, to avoid injury to the ureter and to control bleeding from the uterine artery. The first surgeons who avoided "mass ligatures" were Kolaczeck (1881), Reuss, and later Rydygier.

Freund recognized the faulty position of the operation, as devised by him, in his inaugural address before the International Medical Congress, held in London in 1881; not because of the high primary mortality, but chiefly because no better ultimate results were obtained than by vaginal hysterectomy as practiced by Czerny. But that Freund recognized, from a pathologic-anatomical point of view, that the abdominal extirpation was the more rational, is shown by the proposition which he had made through Linkenheld in 1881, that not only the uterus, but in connection with it the pelvic glands, should be extirpated. And the "mass ligatures" should be dispensed with.

In 1881 Bardenheuer reduced, by his method of vaginal drainage, the primary mortality from more than 70 per cent to 33 per cent.

Still not much progress was made, because of the unfavorable ultimate results, and even the primary mortality was too great, until in 1891 a change was brought about, principally through the efforts of American surgeons — Polk, assisted greatly by Baer, promulgating the advantages of the Bardenheuer drainage and the necessity of Trendelenburg's pelvic elevation. Polk took advantage of Stimson's method of isolating and separately tying the uterine artery, as was taught by Stimson in 1889.

The greatest credit, however, is given to Clark (1895) for his contribution toward bringing about a proper technique in the radical operation. Clark's writings are especially valuable because of the excellent drawings accompanying his description, which for that period have not their equal in literature. The only work worthy of mentioning alongside

[1] We wish to acknowledge to the publishers our thanks for the privilege of reproducing these illustrations.

of Clark's is an article by Mackenrodt, of Berlin (1894).

Almost simultaneously with Clark, Rumpf (1895) and Ries (1895), independently of each other, described two different methods of total extirpation, which, in their own way, showed a decided advancement in technique. By comparison of the three different methods, that of Clark and Rumpf is nearer to the technique generally used today than is Ries'. By the latter's technique the parametrium could not be sufficiently removed. To Ries' credit it is, that he insisted upon the necessity of extirpating the glands.

In Germany it is Wertheim who, by his persistent work, brought to full credit again the abdominal total extirpation.

SPECIAL TECHNIQUE

1. *Preparation for operation.* The bowels must be thoroughly emptied: castor oil given in malted beer is to be preferred, and soapsuds enemata; occasionally, when castor oil is not borne, Epsom salts is used.

The patient is given a tablespoonful of castor oil as soon as she enters the hospital. On the day before operation, another tablespoonful of castor oil is given, and only fluid diet. During the afternoon before the operation the pubis is shaved, after which an enema of warm soapsuds, 1½ litres, is given; and after this has been very effectual, a warm bath is given. Then the woman is put into a freshly prepared bed and an application of 70 per cent alcohol is placed upon the abdomen and genitals, which is held in place by a large "T" binder. The application is changed several times. Over night this is changed for a sublimate application, which remains on the patient until the time of operation. The women are not permitted to get up again nor to use the general toilet. Vaginal douches of peroxide of hydrogen or sublimate, according to the degree of purulent secretion, are given. Half a gramme of veronal is given during the night to overcome restlessness.

If the women are unusually weak, some modification of the preparatory treatment may be desirable.

2. *Narcosis.* Women among the better classes are not so readily made insensitive to surgical interventions by lumbar anæsthesia as are women of the ordinary classes — the working class. If the effect desired is not obtained, so that inhalation anæsthesia must be resorted to, the accumulated action of the several poisons — scopolamin, with morphin; novocain, with or without adrenalin; the drugs used for inhalation anæsthesia — all combined, have a more dangerous effect.

If, however, the lumbar anæsthesia is perfect, it is so much superior that the occasional omission of its effect is not likely to eliminate its use in practice. This is especially the case in cancer operations, since the stomach and kidney functions, important factors, are not impaired by spinal analgesia.

The proper technique of lumbar anæsthesia is of the utmost importance. The method in use is: One hour before operation, the woman receives subcutaneously 0.01 morphin and 0.0003 scopolamin. The evening prior to operation, 0.5 to 1.0 of veronal is given. Stovain is used for the spinal injection. Adrenalin has been discontinued.

The injection is made with the patient in a sitting posture, the spine well curved. The needle is inserted in the space between the second and third lumbar vertebræ. No weight is attached to the quantity of spinal fluid withdrawn. As soon as the fluid comes out clear, the syringe which contains the stovain is attached to the cannula; then the fluid is drawn into the syringe barrel, so as to mix it with the stovain. It is now injected. There is no risk in turning the patient at once into the dorsal position or into pelvic elevation if one takes the precaution to sharply flex the neck. Antiphones may be put into the ears, to prevent the patient from awakening from the "twilight sleep."

3. *Disinfection and vaginal preparation of the carcinoma.* The disinfection of the abdominal parietes does not differ from that used for other laparotomies. Iodine, too, is used; but before the iodine painting, the abdomen is thoroughly washed with benzine and sublimate alcohol.

Opinions differ as to the vaginal preparation of the cancer; for instance, Krönig and Döderlein fear curetting, because it may disseminate carcinoma germs into deeper structures, and, on the other hand, those already present there cannot be destroyed by curetting.

In Bumm's clinic they believe it is best to rapidly destroy all breaking down cancerous structure with a sharp curette, or, under some circumstances, with scissors, and then put onto the surface a hard eschar, with actual cautery (Paquelin). Care must be taken not to cauterize too deeply, if the cancer is in an advanced stage, because of the danger of injury to the rectum and bladder.

After cauterization, the vagina is first cleared with alcohol and then with sublimate; it is then dried and a 5 per cent nitrate of silver solution is poured into the vagina, and allowed to remain in contact a short time. The nitrate of silver, independently of its cauterizing effect, forms a coagulation layer over the carcinoma and vaginal wall, which, at least temporarily, prevents germs from the interior from penetrating through it. Bacteriological tests have shown the superiority of nitrate of silver for that purpose. After removal of the superfluous nitrate of silver solution, the vagina is tamponed *tightly* with vioform gauze, so as to lift up the uterus and ureters; to the end of the gauze a clamp is attached, which protrudes from the vulva so that it may be withdrawn readily when desired.

Nurses and assistants who were in any way connected with the "preparatory operation" should not, if it can be avoided, assist at the radical operation. If the surgeon himself found it desirable to do the preparatory operation, the customary pre-

cautions as to asepsis should be carefully looked after between the two operations.

Neither the instruments used nor the room in which the preparatory operation was done should be used for the final operation.

4. *Abdominal incision; care of the abdominal parietes and isolation of the field of operation; pelvic elevation.* The best method of making the abdominal incision so as to secure adequate exposure of the field of operation is still a mooted question.

In the Imperial University clinic the ordinary median incision is used, from the symphisis to the umbilicus, or a little above this when necessary. Occasionally the insertions of the recti muscles at the symphisis are nicked (slightly incised). This then gives sufficient space to work properly.

To avoid the danger caused by soiling the edges of the wound with carcinoma elements, the entire wound is protected with a double fold of a gauze napkin, which envelops one layer of Billrothbatist (similar to oil silk). This is sewn onto the abdominal wall by three through-and-through sutures (Fig. 1). The other side is treated similarly, so that no part of the abdominal wound is left exposed. This protection also prevents too much pressure by the abdominal retractors.

To hold back the intestines, a very large compress, composed of several thicknesses of gauze, two metres long and ten centimetres in width, is used. Such large gauze barrier gives better satisfaction than numerous smaller compresses.

The operation is done with the patient in extreme pelvic elevation. The shoulder braces on the table are provided with inflated rubber cushions, and the head rests on a movable head-rest, permitting the head to be put at any angle.

5. *General procedure of the operation; exposure of the field of operation; position of the assistants.* The position of the operator must be changed during the operation to give better success to a particular field of work. The operation is begun by the operator standing on the right side of the patient, to do the work on the left side. A large abdominal retractor (Stöckel's) is used at the lower angle of the wound, and is left in place during the entire operation. The abdominal wall of the left side is held well back by an assistant with a large retractor, so that the base of the ligament is exposed, particularly so when an assistant standing behind the operator pulls the uterus well over to the right side (Fig. 2). Now the left spermatic vessels are tied and the anterior peritoneal fold of broad ligament split, the ligament is unfolded, the left ureter exposed, the uterine artery searched for and tied, and finally the ureter is traced to the bladder and isolated and the bladder pushed off the cervix.

Now the operator and assistants reverse their positions, and a similar technique is used for the opposite side. Then the peritoneum of Douglas' pouch is cut, the rectum pushed off, the vagina severed, and the extirpation of the parametria consummated. After the extirpation, the operator resumes his former position on the right side of the patient and the peritoneal toilet is attended to — the suturing of the vagina to the peritoneum anteriorly, the bladder, and posteriorly to Douglas' peritoneum; the tying of clamped parts, the extirpation of glands, and the uniting of the peritoneal folds of the broad ligaments.

During the entire operation the principle of simplicity should be predominant; only one assistant may come in direct contact with the wound.

6. *The separate steps of the operation.* (*a*) Opening and Topography of the Parametria.—The several methods used by others — and here again Clark's method is highly spoken of, and also that formerly used by Bumm — are first discussed briefly.

The present technique is as follows: The uterus is grasped with two pairs of volsellum forceps, one on the left and one on the right uterine end of the tubes, and pulled toward the symphisis and to the right. By pulling the left adnexum the left infundibulopelvic ligament is made taut, when the spermatic vessels are readily seen; they are grasped between two clamps, cut, and tied at once. Now the uterus may be drawn toward the promontory of the sacrum, so as to bring the anterior broad ligament fold well into sight. With a crescent-shaped incision the anterior fold of the ligament is split over and past the round ligament, and the incision is continued in the vesico-uterine plica (peritoneum) to the median line (Fig. 3.) The peripheral end of the round ligament is immediately tied with a catgut, which material is used throughout as intraperitoneal ligature and suture material. From the split in the anterior fold of the ligament one can now bluntly dissect his way with the finger and forceps, unfolding the loose connective tissue of the ligament. These layers of connective tissue diverge in the direction of the ureters and large vessels. It is therefore important that one separate them in that direction, because, by the observance of this, one may unfold the ligament more readily without injury to small blood-vessels, to bring into view the ureter, which is attached in a hanging position to the median fold of the ligament, and it is best to let it remain in that attachment. In the depth, as in an anatomical specimen, the large vessels may be seen and readily traced to the bifurcation of the iliac artery (Fig. 4).

Because the tissue of the ligament is so easily separated in its long direction, the bundle of uterine vessels becomes conspicuous, since its direction is transverse to the separated connective tissue fibres. The uterine vessels over the ureter must be isolated, so that the branching off of the superior vesical artery is also brought into view. Only in exceptional instances, during the dull separation of the ligament tissue, the ureter is drawn over with the lateral fold of the ligament. With this possibility one must count, so that one does not unnecessarily dig into the depth at the median fold, because the ureter hangs rather superficially on the lateral fold. How important it is not to continue with the operation until the ureter is clearly seen was shown in an instance in

which the ureter remained attached to the lateral fold, and was therefore not found in its typical position. It was decided to first locate the uterine artery, to find the ureter from that point. In doing so, the non-exposed ureter got into the clamp, which was intended to catch the uterine artery, and was severed.

Inflammatory changes in the ligaments may make the blunt unfolding very difficult, inasmuch as the more or less infiltrated tissue will cause a rigidity, and more intimate adhesions to it and the ureter and vessels. The presence of much fat will also cause much difficulty in finding the ureter, and one must be very careful in these cases so as not to get into wrong strata.

(*b*) Ligation of the Uterine Artery.— If the ureter and blood-vessels have been exposed according to the method described, the ligation of the uterine vessels causes no difficulty. The vessels crossing the ureter transversely are caught between two clamps, cut, and ligated. In tying the uterine artery we must endeavor to avoid the superior vesical artery. The uterine artery and the superior vesical artery originate, as a rule, in a short common trunk from the hypogastric artery; for this reason one should not tie too closely to the hypogastric artery, but rather median from the branching off (bifurcation) of the superior vesical artery. Gangrene of the bladder may ensue from the tying of the superior vesical artery. Bumm saw a fatal secondary hæmorrhage from the hypogastric artery, because the uterine artery, before the branching off of the superior vesical artery, was tied at the short common trunk, too near to the hypogastric artery.

When the uterine vessels passing over the ureter have been ligated, one must — to this Bumm calls special attention — see if, beneath the ureter, there is another deep uterine vein (Fig. 5). If one is not careful about this — the vein being frequently present — a very abundant hæmorrhage may take place, since it is injured easily, and then may cause considerable complication, from an endeavor to control the bleeding, by further injury to the adjoining venous plexuses.

(*c*) Exposure of the Ureter to the Bladder.— After the uterine vessels have been cared for on the left side, the ureter is dissected out of its parametrial embedment and traced to its insertion into the bladder, which is then pushed off from its underlying structure. Until the ligation of the uterine vessels has been completed the operation is comparatively simple, whether the cancer is in its beginning stages or further advanced. On the other hand, the isolation of the ureter from its parametrial bed and its insertion into the bladder, from a technical point of view, varies very much. Whether the isolation of the lower end of the ureter is technically difficult or easy will depend on the greater or lesser carcinomatous changes in this location.

If one holds up the uterine end of the severed uterine artery with a pair of forceps and draws it toward the uterus over the ureter (Fig. 6), one can see that the ureter is attached to the cervix by thin connective tissue bands, which go from the uterine vessels to the cervix; these bands are put on slight tension, and define themselves sharply from the ureter when the uterine artery is lifted up, and may be severed without difficulty or risk, with scissors, close to the ureter.

The connection between the vessels and the ureter being severed, the ureter can now be worked out of its parametrial bed; the vessels in toto with the lymphatics and glands remain in contact with the uterus. Usually it is possible to isolate the ureter entirely from the bladder by blunt dissection, by lifting it with a pair of anatomical forceps. Occasionally, however, when it is adherent by inflammatory infiltrated tissue, scissors must be used to sever the connection of the ureter from the more intimate adhesions from the paracervical tissue, before it enters the bladder. But whatever can be separated bluntly should be done so. Particularly the lateral region of the ureter, at its entrance into the bladder, requires much care, because of the frequently distended veins of the vesicovaginal plexus.

The separation of the bladder from the cervix at the insertion of the uterus is made easier if the bladder is held forward with a broad retractor. By this the bands of tissue which come from the cervix, partly above and partly below the ureter, are put on tension, and the ureter is plainly visible at its insertion into the bladder. In this way the vagina can be fully isolated anteriorly.

(*d*) Venous Hæmostasis.— Generally, by following the directions given, the veins in the depth of the pelvis, leading to the median iliac vein, may be avoided. One can usually avoid venous bleeding if one holds to the rule, after isolating the ureter, ligating the uterine artery, pushing off the bladder on the left side, and thus, having clearly exposed and brought into view the left half of the urinary tract, let the base of the broad ligament and the deep-seated veins alone, and turn to the right side of the pelvis and do similar work. The attack on the roots of the parametria, and with that the opening of the deep venous plexuses, should be left as the last step of the extirpation, after the arterial blood supply to the vagina has been also cut off.

Should one be unfortunate, however, and cause an injury, it is best to follow Bumm's advice, and make no attempt to control the bleeding by an application of clamps or mopping with pads. Such procedure may only increase the hæmorrhage by injuring additional veins. Use compression: upon the bleeding surface place carefully an abdominal pad and continue the operation in the regular way. It is likely that when the extirpation has been completed the hæmorrhage will have ceased, or that only an occasional clamp need be applied, which can then be done without risk, since, after extirpation of the uterus, the bladder, the ureters, and the large vessels are in view. Keep cool during the work.

(*e*) Incision of the Posterior (Douglas') Peritoneum; Pushing Off of the Rectum from the Vagina.— When the ureter on the left side, to its insertion into the bladder, has been isolated, and the bladder itself separated from its underlying structure, so that not only the cervix is bared in front, but also the vagina isolated far downward, the position of the operator is reversed and a similar technical procedure is followed on the right side. The anterior semilunar-shaped incision is, of course, made so that it will meet the similar incision in the vesico-uterine plica of the opposite side.

When the bladder and ureter have also been liberated on the right side, the first principal part of the operation is done; the urinary apparatus has been separated from the organ to be extirpated, and the four sources of blood which supply the uterus have been cared for. Now the peritoneum posteriorly between the spermatic pedicles is cut through. To do this the uterus is pulled vigorously toward the symphisis, which elevates Douglas' pouch. The incision is carried from one pedicle of the infundibulopelvic over the folds of Douglas, about on a level with the vaginal portion of the cervix, to the pedicle of the spermatic vessels of the opposite side. Usually the peritoneum can be pushed off bluntly, which causes the rectum, which has frequently been pulled up also, to sink. Injury to the ureters is easily avoided, since they are exposed on either side (Figs. 7 and 8). It must be borne in mind, however, that laterally they are within one half centimetre of the posterior peritoneal incision. Injuries of the ureters have, therefore, been of repeated occurrence at that point.

If the peritoneum is not pushed off easily, a blunt separation should not be insisted on, because of the risk of breaking through into the vagina.

After complete separation of the posterior peritoneum, we have made the preparation for extirpation of the parametria.

(*f*) Extirpation of the Parametria.— It is to Mackenrodt's credit that, as early as 1894, he persistently insisted upon the necessity of excising the parametria extensively. He demonstrated as the result of his anatomical studies the practical possibility not only of isolating the ureters in the parametria, but also of extirpating the parametrium beyond the ureter.

The angular clamps used by Wertheim to close off the carcinomatous crater in the vagina necessarily grasp some parametrial pedicle. This is not desirable, and to overcome it, Sigwart, on the request of Bumm, had a vaginal clamp constructed which makes it possible to clamp the isolated vaginal tube some distance beneath the carcinoma without the possibility of also getting the parametria in its grasp (Fig. 9). During the application of the clamp the physician must keep the ureters and bladder out of the way, while the operator controls the posterior blade with his hand, so that the rectum is not grasped in case it is not pushed off quite far enough. Now one can push off the rectum laterally, quite extensively, with the finger. Having grasped the uterus with forceps, the cancerous area being well occluded, the entire specimen is held only by the broad roots of the parametria (Fig. 9). When one now pulls with the clamp, the roots of the parametria are shown as broad masses and may be excised to the pelvic wall, in part bluntly and in part with scissors. The bleeding parts are at once caught.

In taking out the parametria it is advisable to first attack the good side, since after extirpating one side the mobility of the other is markedly increased, even if it is markedly infiltrated; so that excision is made much easier. The excision is begun at the anterior parametrial roots, which are best made accessible by holding the ureter and bladder outward and upward as much as possible, while the operator makes strong traction on the vaginal clamp. When the anterior parts of the parametria are severed, the connective and fatty tissue may be peeled out laterally from the rectum, and, gradually progressing toward the posterior roots of the parametria, these may, in part bluntly and in part with scissors, be enucleated and the bleeding areas grasped with clamps.

When the uterus with the parametria has been extirpated, one may see exposed, to the right and to the left in the depth of the pelvis, the levator, covered by the deep pelvic fascia.

As a prerequisite for the proper application of the vaginal clamp, the rectum must be extensively freed, so that the vagina is isolated as far behind as in front, at least to the middle third of the vaginal tube.

If the cul-de-sac of Douglas is obliterated by adhesions, the use of any kind of clamp is not advisable, because the rectum cannot be pushed off satisfactorily. In such cases, the old method of first incising through the anterior vaginal wall is best (the vaginal tampon having previously been removed), and then, with care, because of the close proximity of the rectum, the knife is guided through the posterior vaginal wall. Now the two vaginal edges are coapted and clamped to close off the carcinoma. This part of the operation should be done with exactness, and quickly. After the coaptation of the anterior and posterior vaginal wall, the upper part of the posterior vaginal wall may be separated from below upward with the finger, while traction is made with the other hand on the clamps attached to the vaginal tube.

Mackenrodt is right when he says that the operation really begins when extirpation of the parametria is started. This is the phase which decides the future of the patient. The more radically this is done, the greater the primary mortality. A man who has a very high primary mortality, if he operates really radically, is not to be criticised adversely.

(*g*) Extirpation of the Glands.—The last act of the operation, before closure of the peritoneum, is the "search for glands." Surgically it would be more correct to begin the operation peripherally, taking

the iliac and hypogastric glands with the lymphatics going toward the uterus, and, without injury to any of these structures, extirpate them in continuity with the parametria and uterus; but this is not generally possible without much risk because of technical difficulties, as one will realize who has worked on difficult cases.

The intervention for the removal of glands should be begun at the periphery, extirpating them with their fatty and connective tissue. Frequently, beginning with the gland at the bifurcation of the common iliac artery, a whole chain of glands along the external iliac, going to nearly beneath Poupart's ligament, may be extirpated in continuity.

To extirpate the lymphatic glands, the thin membrane which surrounds and attaches them to the underlying vessels must be incised, then bluntly enucleating the gland with its surrounding fat. This is not, however, always possible.

If one has loosened the glands, they are still attached by filamentous bands along the vein which are put on tension when it is attempted to enucleate the gland. These bands must not be torn nor cut; they can usually be traced for some distance, often to the gland pocket close to the uterus. As a rule several ligatures must be applied, because the bands leading to the glands bleed easily.

After the glands have been found and enucleated, and the ligatures applied to even the smallest bleeding vessels so that the wound is dry of blood, the closure of the peritoneum may be done.

On general surgical principles, drainage of such a large wound surface would be proper. Not so in our case, for obvious reasons.

Without describing the different methods that have been used by various operators, the technique now used at Bumm's clinic is described as follows:

To guard the bladder, the peritoneum of the bladder is attached to the edge of the anterior vaginal wall with interrupted catgut sutures. So we obtain hæmostasis of the anterior vaginal wall and also complete covering of the bladder. This is important for the function of the bladder, aiding in the prevention of paresis. The lateral angles of the vagina require particular attention as to hæmostasis, and this part of the vagina must be sutured with exactitude. In close proximity to these lateral vaginal angles the ureters enter the bladder, hence, *be careful!*

Next the bared rectum must be cared for, which is done in a similar manner, by attaching the Douglas' peritoneum with interrupted sutures to the posterior vaginal wall. Care must be taken not to enter the needle too deeply, lest a fistula develops subsequently.

As the result of the two rows of sutures the wound surface in the pelvis has been greatly reduced in size, so that to the right and left there is only a peritoneal gap from the pedicle of the spermatic vessels to the angles of the vagina, behind each of which the ureter passes into the bladder (Fig. 11). The median peritoneal fold forms nearly a straight line and carries, at least in its upper part, the still attached ureter. The lateral border of the peritoneum forms, at the point of ligation of the retracted round ligament, a blunt angle, so that, without much retraction of the peritoneal borders, a good view may be had of the still open wound surface, the vessel triangle.

After the entire vaginal opening has been sutured to the peritoneum, the ligating of the parts of the parametrium last clamped is attended to. The hæmostasis here may cause considerable technical difficulty, particularly if with the parametria all the fatty tissue and the entire paracolpium were extirpated; but an *absolute, complete* hæmostasis is necessary if one desires to avoid tampon drainage.

In a few instances in which the complete hæmostasis was impossible, drainage applied according to Amann's method was employed. A passage was made for the tampon from the deepest part of the wound surface, between the vaginal wall and rectum, which was brought out laterally to the vulva, near to the anus. It is better, however, to avoid this rather complicated form of drainage.

(*h*) Tampon Drainage or Closure of the Pelvic Peritoneum.— During former years intraperitoneal drainage of the pelvis was adhered to on general principles. A vioform gauze strip six meters in length was carried with a long curved dressing forceps from above downward into the vagina, so that about half of the gauze was in the vagina and the other half in the true pelvis, to cover completely the intraperitoneal sutures. The primary results at once became better. But for various reasons this has been discontinued unless infectious material comes in contact with the peritoneum.

If no drainage is used, the peritoneum is united with a continuous catgut suture from one spermatic pedicle to the other, by which the bladder peritoneum is joined to the Douglas' peritoneum. If the pelvic peritoneum is somewhat scant it is best to use interrupted sutures, since a better coaptation can be secured with interrupted sutures. The abdominal wall is closed in three layers: peritoneum and muscle with continuous catgut, the fascia with interrupted silk, and the skin with Mitchel's clasps. The time required to complete the operation varies from one and a quarter to two hours.

To compress the parametrial wounds as much as possible, to prevent even minimal bleeding, the vagina is tamponed with vioform gauze, which is removed after 24 to 48 hours. A retention catheter is used in every case. To cover the abdominal wound a coating of collodion is used, and, for at least 24 hours, a very tight abdominal binder with pressure. A vulval pad, to protect and hold in place the vaginal tampon, and over this a "T" binder, are applied.

7. *After treatment.* Although the favorable result of the operation is decided on the table, yet much depends upon the after care and treatment.

Every patient is placed in a thoroughly warmed bed, and under an electric light heat dome, until she

is in profuse perspiration, which indicates body reaction. If there is indication of heart failure, 1,000 to 2,000 cc. saline infusion is given subcutaneously, to which may be added 1 to 2 grammes digalen or 10 to 20 minims of a 1:1000 adrenalin-chloride solution. Attacks of heart failure may occur even several days after operation, particularly at the time of the first defecation; hence care must be used in the administration of laxatives, particularly in weak women.

Post-operative bronchitis and hypostatic pneumonia are best guarded against by the omission of inhalation narcosis, and the use of lumbar analgesia instead.

If tampon drainage is used, the pelvic tampon should remain five days, and should be removed piecemeal — a short piece twice daily after the first 24 hours. The terminal end of the tampon should always be enveloped in a large, loose pad of sterile gauze, which increases its capillary drainage ability.

A too early removal of the pelvic tampon may cause a fatal result, since the secretion may be quite profuse, and if the tampon is removed the vaginal wound closes rapidly, no exit being afforded to the secretion.

Cystitis is nearly always a necessary evil, complicating radical operations for uterine cancer. The use of the retention catheter for six days diminishes materially the severity of this complication. The use of internal remedies is preferred, as urotropin, helmitol. Large quantities of water should be drunk. Bladder irrigation is a treatment of last resort, since in this class of cases it is considered risky, by causing an ascending ureteritis and pyelitis. If irrigations are used, 2 per cent boric acid solution, or in obstinate cases a 1 to 5 per cent collargol solution, is advised.

8. *Complications during operation.* It is not always possible, even with the aid of cystoscopy, to recognize advanced involvement of the bladder or encroachment of the carcinoma around the ureters. It may not be possible to strip the bladder from the cervix because of encroachment of the cancer on the bladder wall, or it may be impossible to isolate the ureter because of its tight embedment in carcinomatous parametrium.

The "walling-in" of a ureter in carcinomatous tissue is usually manifested by marked ureteral dilatation above its parametrial part. If the ureteral wall is much injured, it is preferable to resect the terminal end and implant the proximal end into the bladder, because if a ureteral fistula ensues, the complication is more serious than the primary additional intervention of implanting, and, by resecting and implanting, the exsection of the carcinomatous parametrium is accomplished more readily.

The technique which is now utilized for ureteral implantation is: The ureter at its renal end is provided with two silk guy sutures. With a pair of uterine dressing forceps passed through the urethra to the fundus of the bladder, where an opening is made, the sutures are grasped and the ureter is drawn into the bladder a distance of from 1 to 1½ cm. The ureter is then attached by a few sutures which catch the ureteral wall only superficially. The main support to the ureter is obtained by high fixation of the bladder, so forming a sort of bed, upon which the ureter rests. When the edges of the bed are united above the ureter, a muff is formed, which surrounds the ureter and guarantees certain healing. As a last guard of the implantation area an exact peritoneal suture is made. The silk guys, drawn through the urethra, may be sutured to the external genitals (the small labium), or fastened by adhesive plaster. If the ureter has been resected rather high up, the fixation of the bladder to the iliac fossa, as advised by Witzel, answers a good purpose. (The latter procedure has been used by Boldt with satisfactory results.)

Fig. 1. Protection of the abdominal parietes.

If the ureter has been accidentally cut high up, a uretero-ureterostomy, by implanting the renal end into a slit made into the vesical end, gives the best results. In instances in which too much of the distal end of the ureter has been destroyed, so that neither of the operations mentioned can be done satisfactorily, and if the condition of the patient is such that it is too risky to extirpate the kidney, one may tie the renal end of the ureter, and cover the extremity with a close peritoneal suture, leaving the kidney to its fate, either for subsequent extirpation, or, as was the case in such an instance in Bumm's clinic, a spontaneous cure may occur.

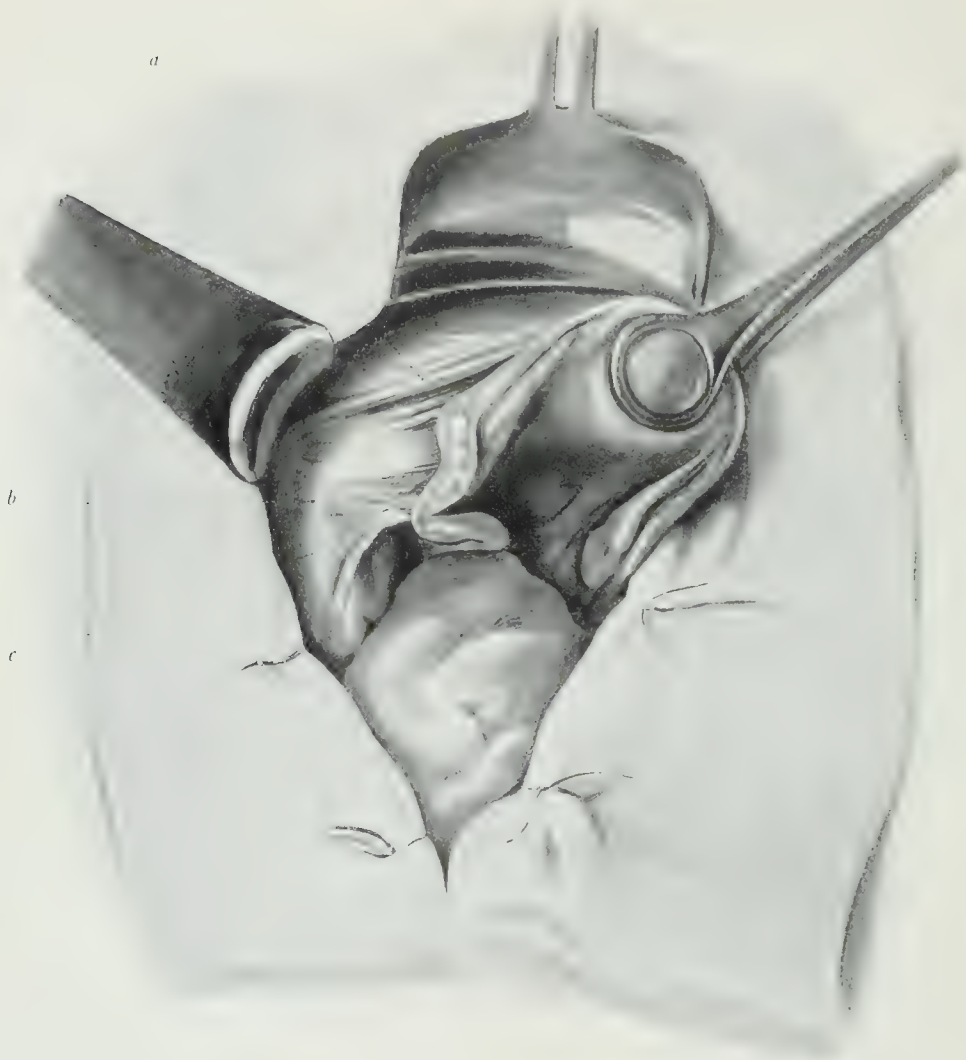

Fig. 2. Exposure of the field of operation on the left side. *a*, Round ligament. *b*, Infundibulopelvic ligament. *c*, Spermatic vessels.

If the bladder has been injured, either intentionally or unintentionally, the prognosis becomes graver.

When rectal fistulæ do occur, they usually close spontaneously.

Serious complications from hæmorrhage, with our present knowledge of anatomy (particularly since Kownatzki's contribution on the pelvic veins) and with our present knowledge of technique, should be of rare occurrence. It may occur that during the extirpation of glands the hypogastric artery may be injured, as occurred in one of the cases. If it is evident that the extirpation of carcinomatous glands is too difficult, technically, without injuring the large vessels, it is advisable to ligate the hypogastric artery and vein prior to extirpating the glands.

Injuries to the external iliac vein, too, have occurred in their experience, but were sutured successfully.

9. *The judging of operability.* An accurate bimanual vaginal and rectal examination is essential.

If the cancer is in its early stage, the uterus mobile, the parametria free, without an infiltration detectable anywhere, the case is considered favorable for operation, with a good chance of a permanent cure, by extensive radical enucleation.

In the case of very obese women, the advice also given recently by Franz Zinsser, to operate per vagi-

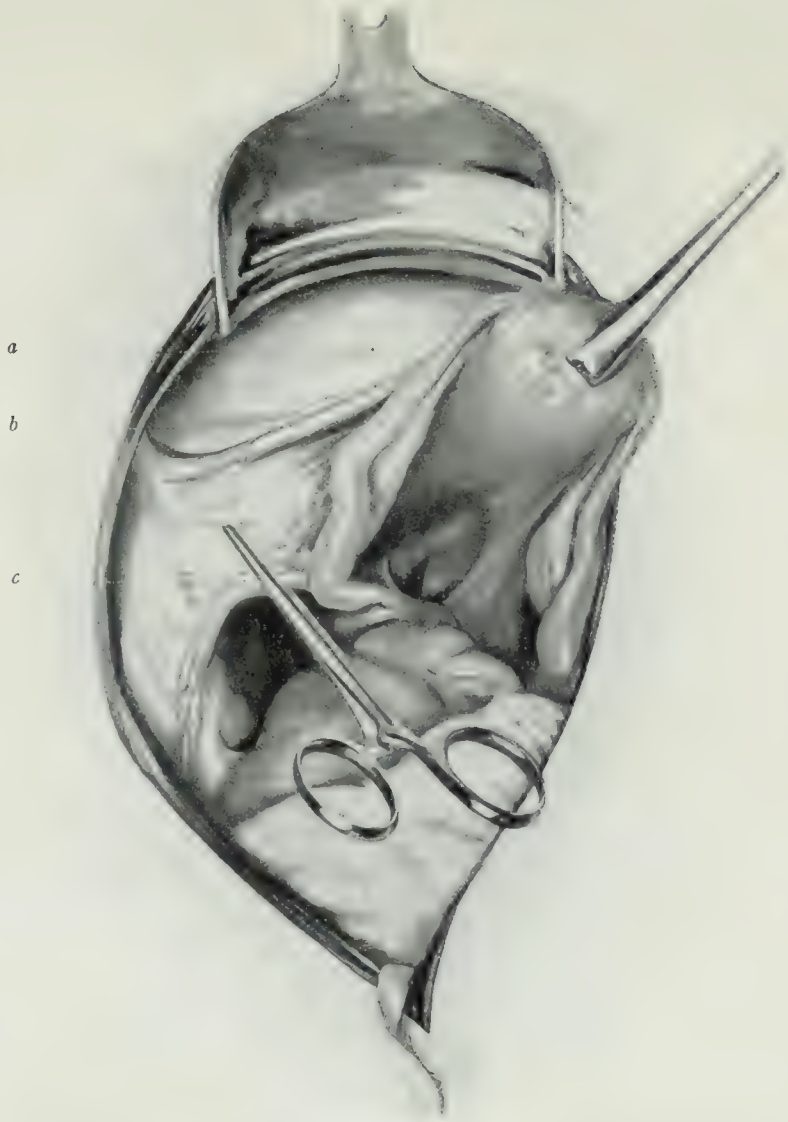

Fig. 3. Clamping of the spermatic vessels. Line of incision over the anterior peritoneal fold of the broad ligament (shown by the dotted line). *a*, Bladder. *b*, Round ligament. *c*, Spermatic vessels.

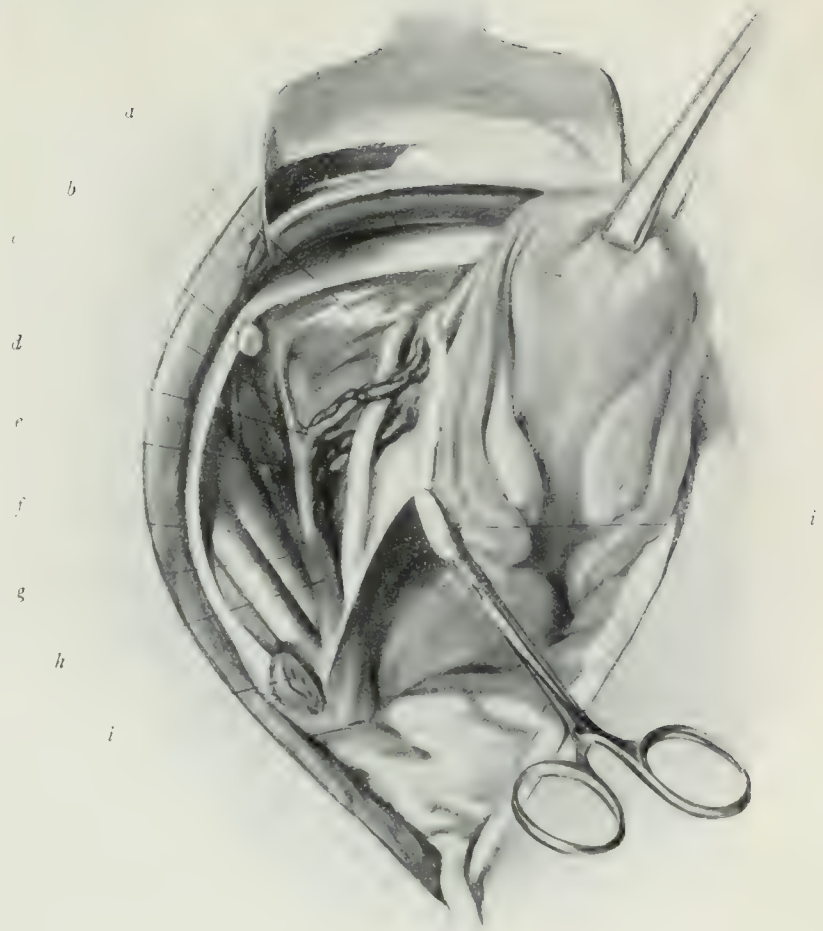

Fig. 4. Topography of the field of operation after unfolding of the folds of the broad ligaments. *a*, Bladder. *b*, Round ligament. *c*, Superior vesical artery. *d*, Deep uterine vein. *e*, Uterine artery. *f*, External iliac artery. *g*, External iliac vein. *h*, Hypogastric artery. *i*, Pedicle of the spermatic vessels.

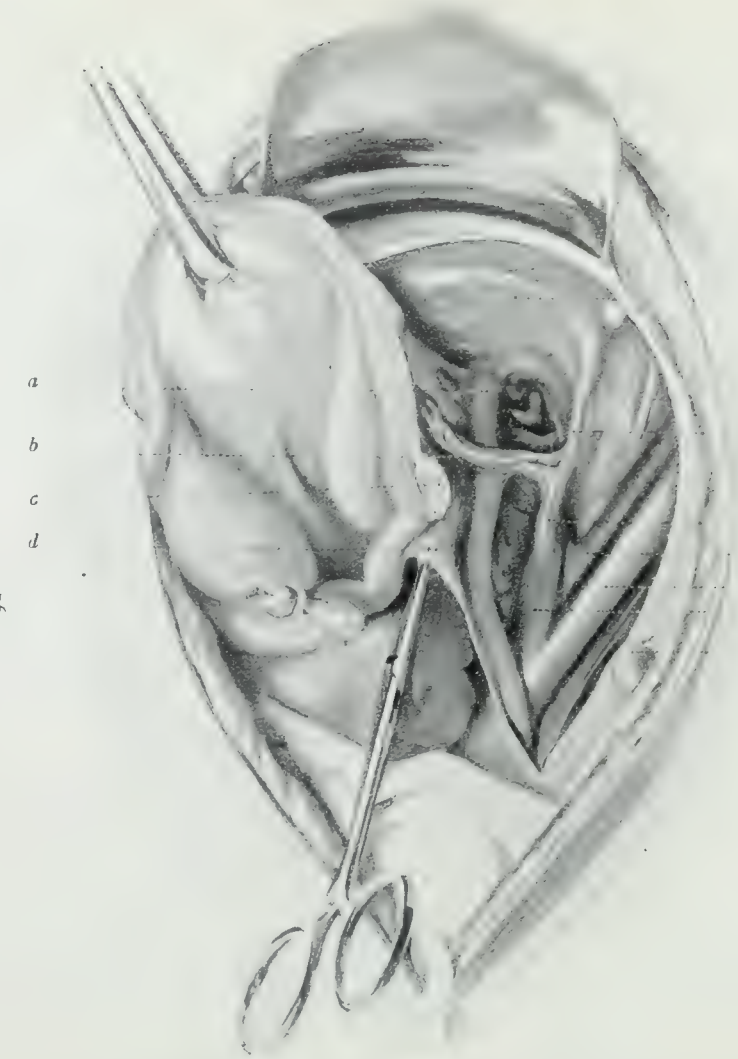

Fig. 5. Topography of the field of operation on the right side. To show the bifurcation of the common iliac artery, the peritoneal incision is carried upward and outward from the pedicle of the spermatic vessels. *a*, Right ureter. *b*, Uterine artery and vein. *c*, Pedicle of the spermatic vessels. *d*, Median fold of the broad ligament. *e*, Bladder. *f*, Obturator nerve. *g*, Superior vesical artery. *h*, Trunk of the uterine artery. *i*, External iliac vein. *j*, External iliac artery. *k*, Hypogastric artery.

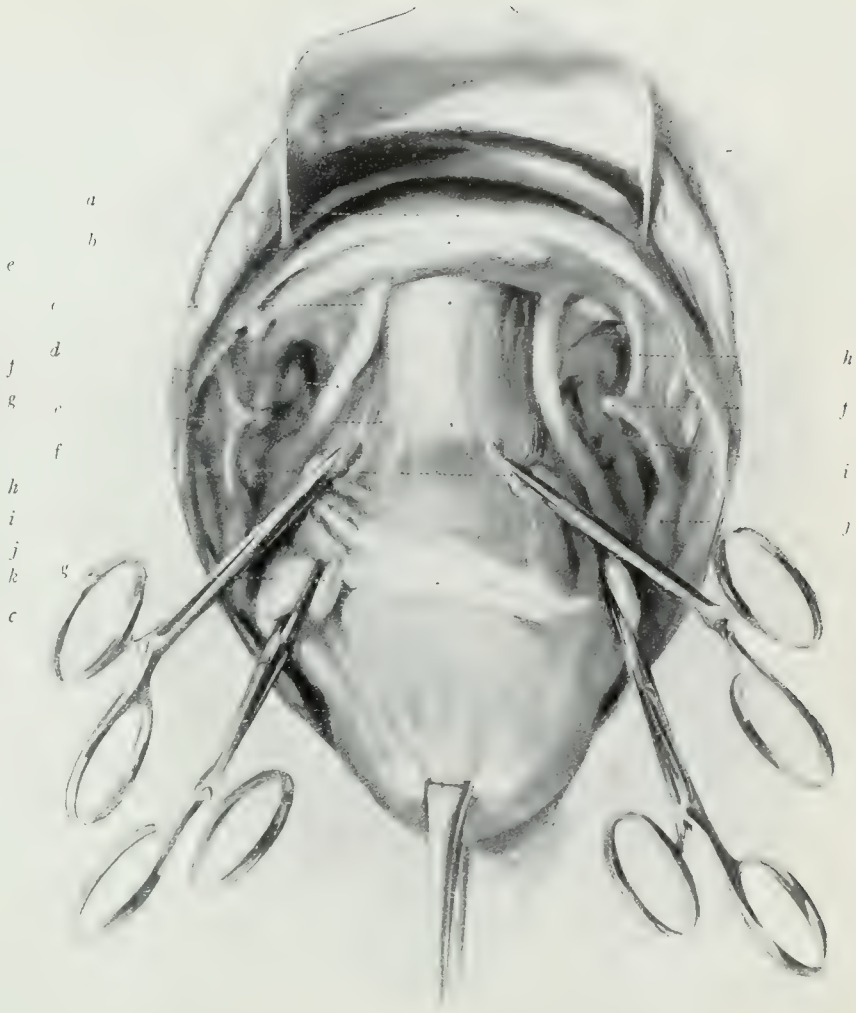

Fig. 6. Situation after exposure of both ureters and after pushing off the bladder. *a*, Peritoneum. *b*, Bladder. *c*, Vagina. *d*, Left ureter. *e*, Cervix. *f*, Pedicle of the uterine vessels. *g*, Edge of peritoneum. *h*, Superior vesical artery. *i*, Trunk of the uterine artery. *j*, Hypogastric artery.

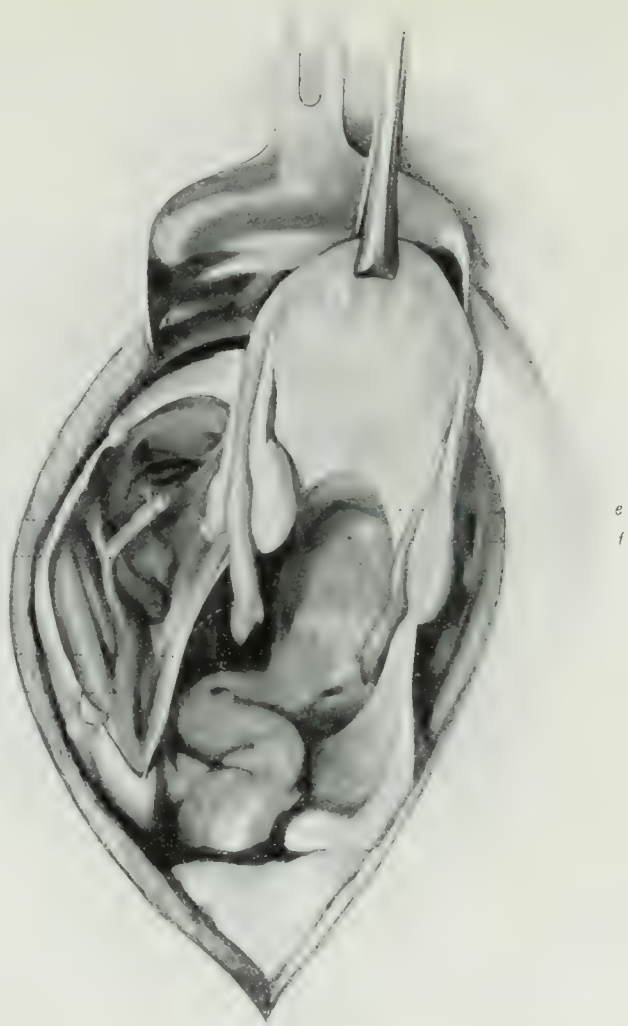

Fig. 7. Line of incision over the posterior peritoneal fold of the broad ligament and of Douglas' pouch (shown by the dotted line). *a*, Superior vesical artery. *b*, Uterine artery. *c*, Ureter. *d*, Bifurcation of the iliac artery. *e*, Fold of Douglas. *f*, Douglas's pouch.

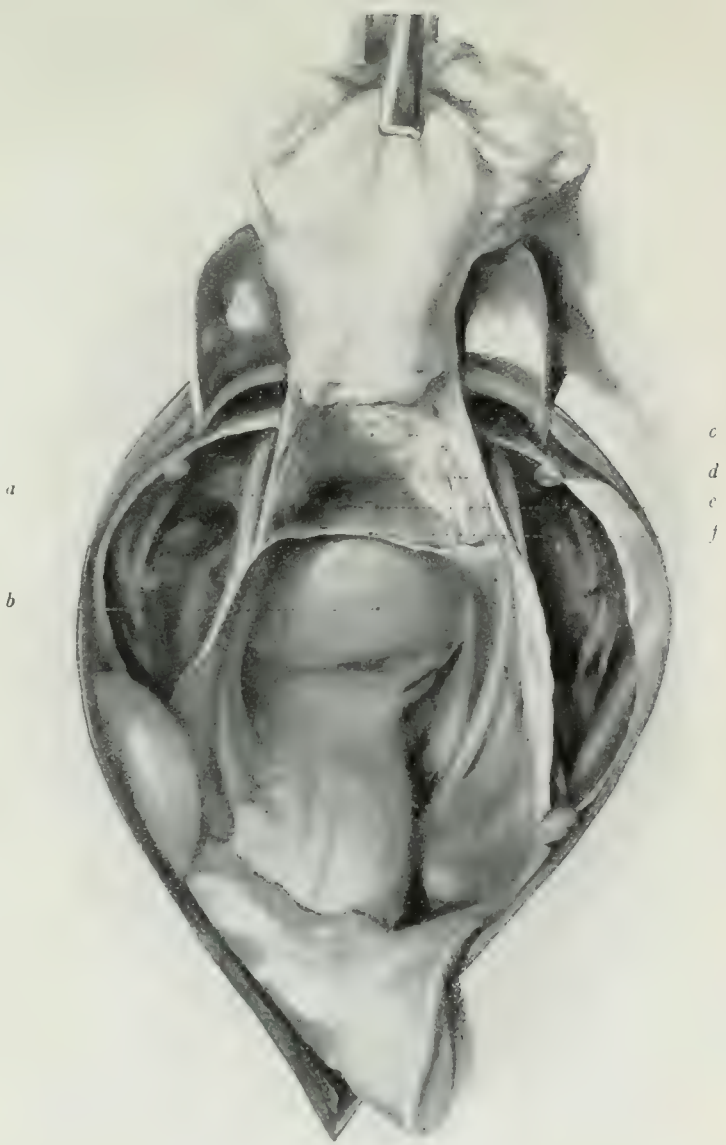

Fig. 8. Pushing off of rectum. Exposure of the cardinal ligaments. *a*, Ureter. *b*, Rectum. *c*, Cervix. *d*, Cardinal ligaments. *e*, Wall of rectum. *f*, Border of Douglas's peritoneum.

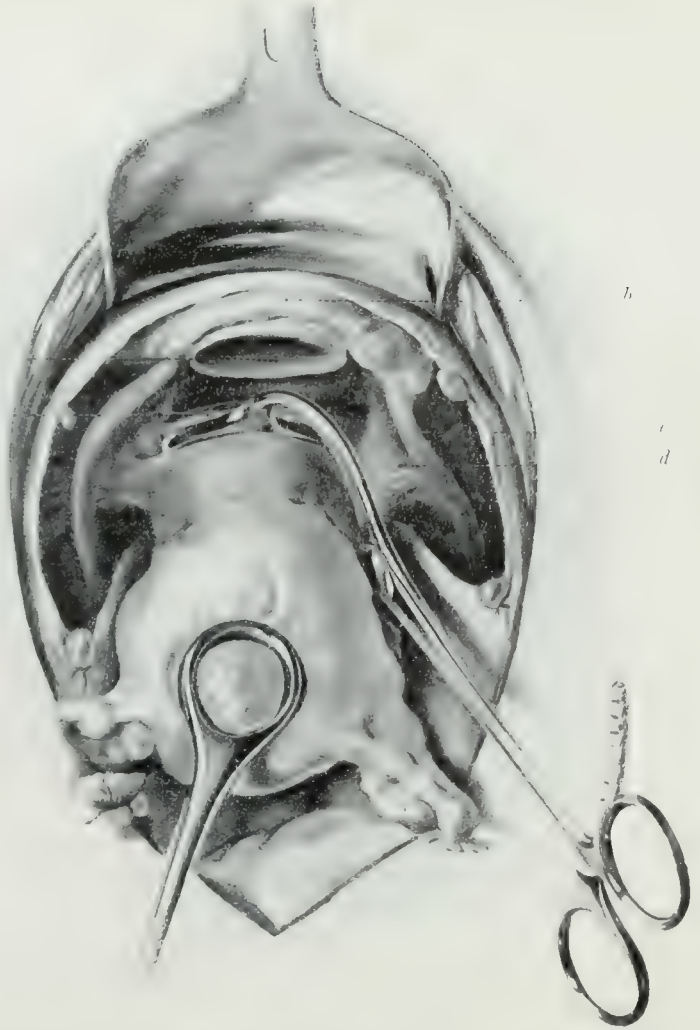

Fig. 9. Application of the vaginal clamp. Amputation of the vagina. *a*, Vagina. *b*, Bladder. *c*, Ureter. *d*, Parametrium.

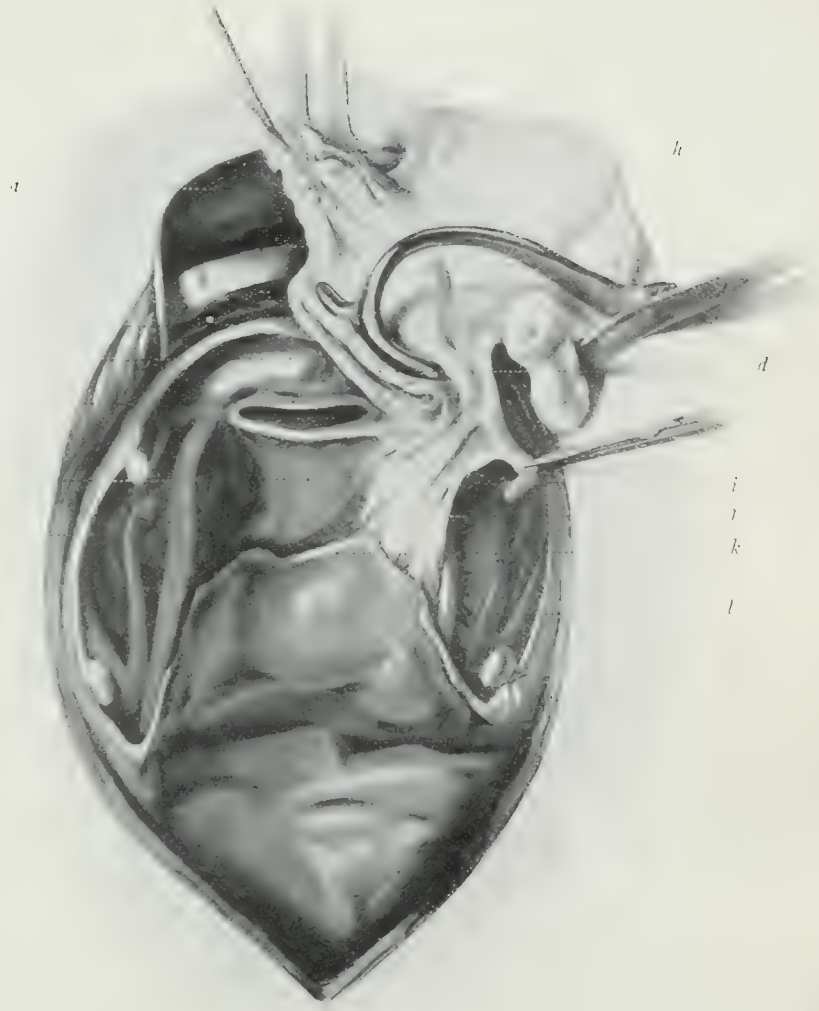

Fig. 10. Extirpation of the parametria. The left parametrium has been severed with its roots; on the right side the entire base of the parametrium is exposed. *a*, Left parametrium. *b*, Peritoneum of bladder. *c*, Bladder. *d*, Vagina. *e*, Rectum. *f*, Uterine artery. *g*, Ureter. *h*, Left uterine artery. *i*, Right uterine artery. *j*, Parametrium. *k*, Border of Douglas' peritoneum. *l*, Posterior root of parametrium.

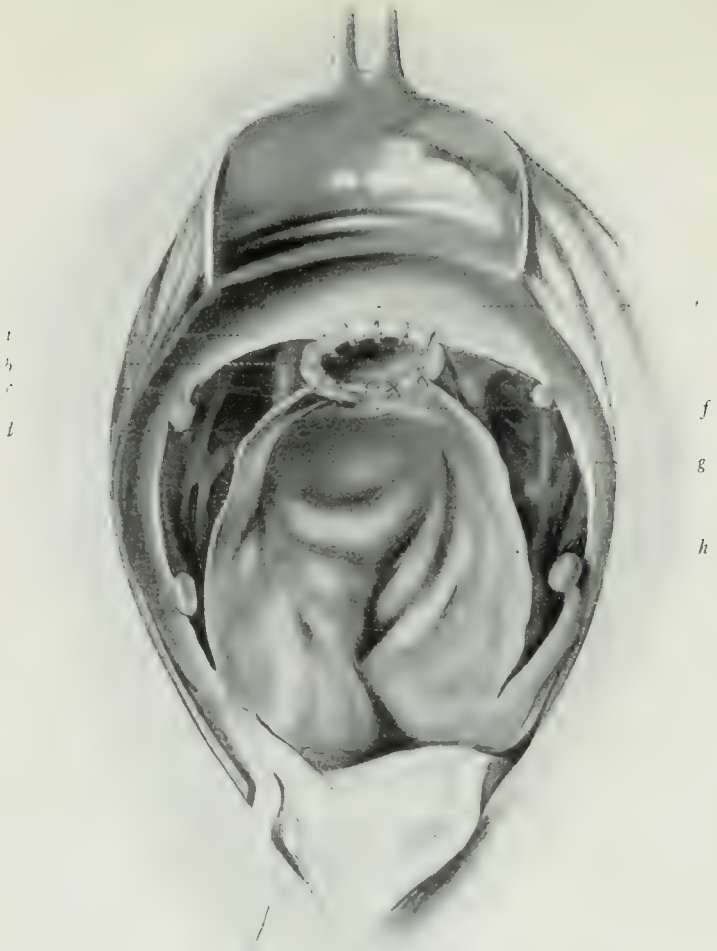

Fig. 11. Suturing of the vagina anteriorly with the bladder, posteriorly with Douglas' peritoneum, whereby the bladder and rectum are covered. *a*, Anterior vaginal border. *b*, Ureter. *c*, Posterior vaginal border. *d*, Parametrial wound cavity. *e*, Peritoneum of the bladder. *f*, Peritoneum of Douglas. *g*, Lateral fold of the broad ligament. *h*, Median fold of the broad ligament.

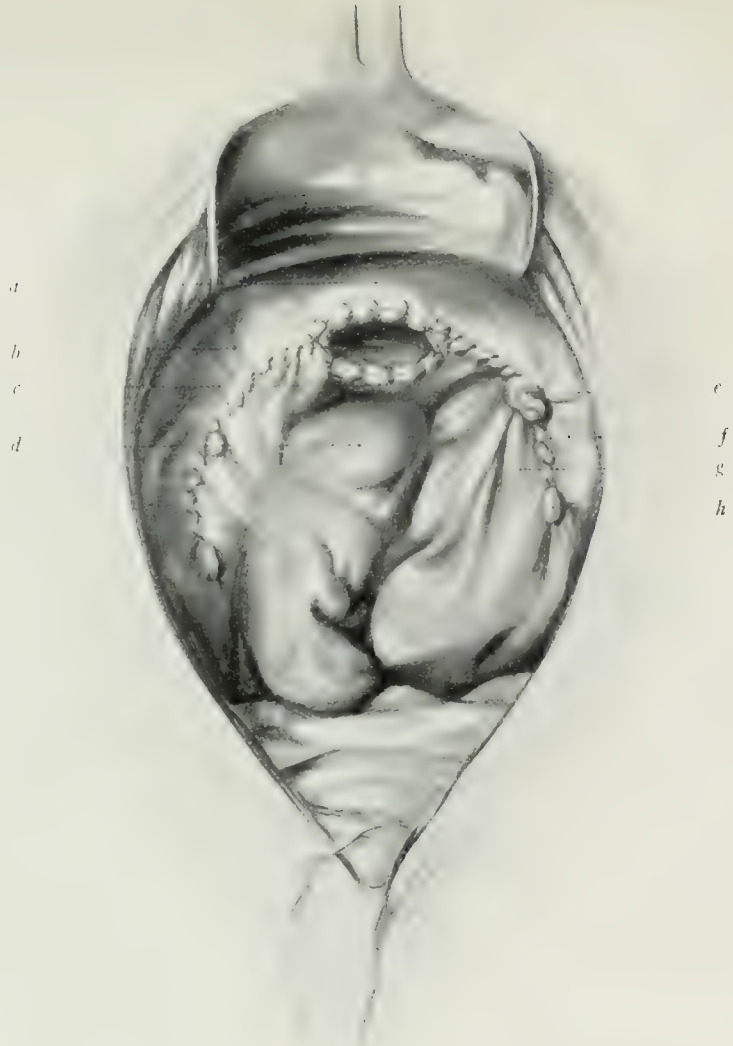

Fig. 12. Peritoneal suture of broad ligament folds. *a*, Bladder peritoneum. *b*, Vagina. *c*, Douglas' peritoneum. *d*, Rectum. *e*, Pedicle of round ligament. *f*, Lateral fold of broad ligament. *g*, Median fold of broad ligament. *h*, Pedicle of the spermatic vessels.

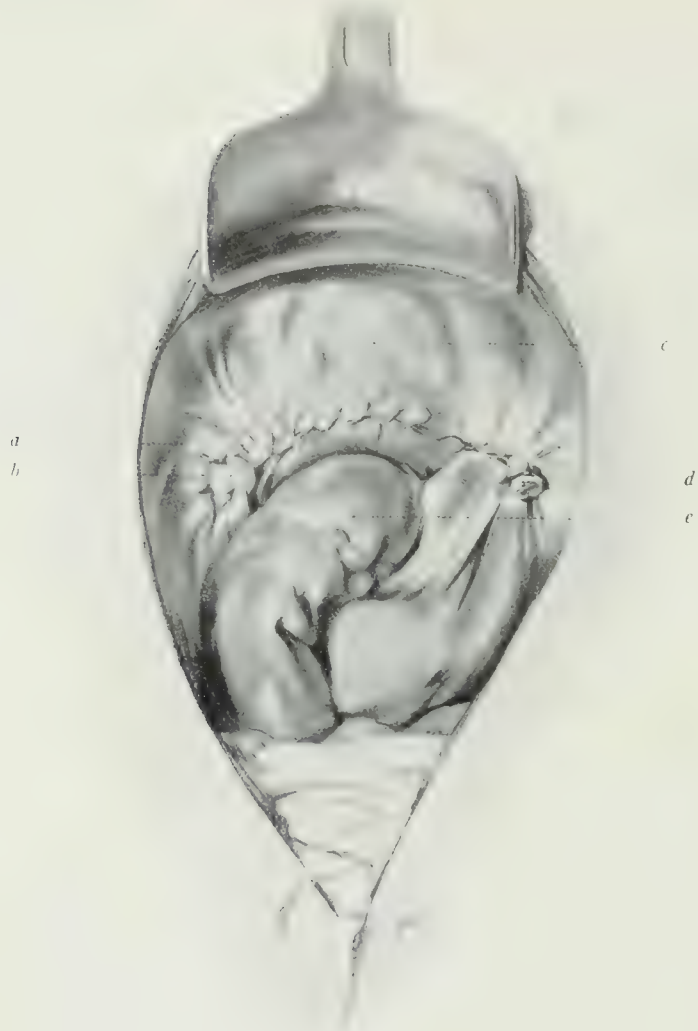

Fig. 13. Complete closure of pelvic cavity by suturing of the bladder and Douglas' peritoneum over the sutures of the vagina. *a*, Pedicle of round ligament. *b*, Pedicle of the spermatic vessels. *c*, Bladder peritoneum. *d*, Pedicle of spermatic vessels. *e*, Rectum.

nam, if the cancer is in its early stage, may be considered; but in Bumm's clinic the principle is adhered to to operate on every patient per abdomen if at all possible.

If the carcinoma has advanced beyond the boundaries of the uterus, no fixed rules can be laid down. Then the question of operability is necessarily a personal equation — an opinion that each operator forms for himself. The man who is timid and only operates "smooth cases" will have a low percentage of operability, and also a low primary mortality. Both rise, however, as soon as the borders of operability are extended.

The importance of a careful rectal examination cannot be overestimated in judging the operability of a particular case. By it we do not only judge the extent of parametrial infiltration, but also the infiltration of the recto-uterine ligaments. Massive or less infiltrated bands may be felt per rectum, as they diverge and pass toward the pelvic wall, but the infiltration does not quite reach it — a sign, therefore, that the infiltration is still limited to structure, the removal of which is possible from a technical point of view. Such patients should, despite the infiltration, be operated upon.

The propagation of the cancer upon the vagina

and perivaginal tissue for the purpose of judging the operability, since we can also by the abdominal route extirpate the entire vagina with the subvaginal tissue to the vulva, *should not decide against operation.*

While a cystoscopic examination cannot always clear up the operability from that field, still in every instance of carcinoma the examination should be made; because if that shows the bladder to be involved, one need not subject the patient unnecessarily to an abdominal section, unless he has decided to resect a part or the whole of the bladder.

In addition, the cystoscope must give us information as to the function of the kidneys, especially the ureters. If one of the ureters is found to be nonfunctionating, or its function diminished, we may expect difficulty in isolating that ureter. But to judge the operability alone by that would be wrong, since the ureter itself is seldom affected by cancer. Moreover, if the other ureter and kidney functionate normally, one may still operate and get a good result by sacrificing the kidney on the affected side.

One should not operate on carcinomatous patients in the presence of febrile temperature, since streptococci may be present, not only in the carcinomatous tissue but also in thrombosed vessels of the ligaments and in suppurating glands. A non-observance of this precaution may be penalized by death of the patient of peritonitis or sepsis.

10. *The primary results of operation.* Of 269 patients operated upon in Bumm's clinic, in Halle and in Berlin, 138 were operated by the older technique. The number of deaths was 41 or 29.7 per cent. Since the use of the present technique (with which, however, pelvic drainage was used until the autumn of 1910), of the 131 patients thus operated upon, 28 died, or 21 per cent. These were all cases of cancer of the cervix. Cancer of the body of the uterus is not included.

CAUSES OF DEATH

Five women died of collapse and shock. But, of these 5, it is believed 2 died of an accumulation of poisons used to bring about narcosis, since in 2 lumbar anæsthesia had no effect, so that inhalation narcosis became necessary from the beginning of operation. One must be guarded about the prognosis in very obese persons and those more than 55 years old. Nine women died of peritonitis, within eight days following operation. Seven died of septic cellulitis. In 6, the direct cause of death was pulmonary embolism.

It is evident that women of advanced age do not stand the operation so well as younger women, since the mortality in women more than 50 years old was 34 per cent, whereas for those under 40 years it was but 12 per cent.

Of 60 patients in whom the parametria were not infiltrated at all, or only very slightly, the mortality was 6.6 per cent — only 4 deaths.

The greatest mortality was among women upon whom an intentional or unintentional injury took place. There were 10 such patients, of whom 6 died.

Of the 71 women who had parametric infiltration, there were 14 cases in whom the carcinoma actually "walled in" the ureter. In one the ureter was resected, and in 13 it was peeled out of the infiltrated carcinomatous parametrium, and only once a ureteral fistula resulted. The patient in whom the ureter was resected died, likewise 3 of the other 13 women, so in 9 of these cases the ureter recovered from the traumatism caused by difficult enucleation. Such good results can be ascribed, not only to the careful technique during enucleation, but to the omission of subperitoneal drainage of the wound cavities.

There were 7 vesical fistulæ, of which 4 occurred spontaneously and 3 remained after injury to the bladder; among these there was one vesico-abdomino-parietal fistula. The greater number of these fistulæ closed spontaneously.

The rectum was injured to the mucosa two times. One of these patients had an advanced carcinoma and died of suppurative cellulitis. In one case the rectum was opened a distance of 3 cm. while pushing off the vagina. The patient made a good recovery without a fistula.

Twice a rectovaginal fistula resulted, which closed spontaneously.

The taking place of suppuration of the abdominal wall must be regarded as a very unpleasant occurrence, retarding convalescence; in one instance it resulted in death. In 17 per cent of the operations it occurred. During the first days the wound appears perfectly normal, but during later days, somewhere about the wound — usually at its lower angle—an inflammatory area is noticed, at which the manifestation of an abscess soon becomes obvious.

In 95 cases glands were extirpated. Of these, in 42 cases the glands were proved carcinomatous.

Twenty-three of the patients who had carcinomatous glands also had infiltrated parametria. In the other 19 patients the parametria were free.

Of the women in whom carcinomatous glands were removed more than five years ago, 3 are still free of recurrence.

Bumm's statistics are clear. Of 218 women with carcinoma of the cervix, 133 were operable. Of these, 35 were cured permanently — 16 per cent.

HERMAN J. BOLDT.

OBSTETRICS

PREGNANCY AND ITS COMPLICATIONS

Patek: Treatment of Abortion. *Arch. f. Gynäk.*, 1912, xcviii, 8. By Surg., Gynec. & Obst.

Patek discusses the treatment of abortion upon a basis of 1012 cases observed at K. v. Krankenhaus Wieden in Vienna. The cases were divided into the following groups: Imminent abortion, 92; abortion in progress, 166; incomplete abortion, 723; induced abortion, 16; puerperal processes, 15.

Treatment in imminent abortion is strictly conservative. Interference for special cases only. His material does not permit Patek to form any conclusions as to the number of these pregnancies going to term.

Abortion in progress: the expulsion of the ovum is usually left to nature. Indications for interference are persistent or copious hæmorrhage and rise of temperature.

Incomplete abortion: Patek pleads for curettage (excepting special contraindications) irrespective of presence or absence of fever. In all evacuations the author prefers the blunt curette, using laminaria tents for dilation if necessary. He is not in favor of digital evacuation.

In imminent abortion, or abortion in progress at fourth to seventh month of pregnancy, he counsels waiting, or the use of pituitrin.

RESULTS

Incomplete abortion. In 69 per cent of cases there is a fall of temperature after curettement; in 28 per cent the temperature remained from 4 to 6 days; complications attributable to curettage occurred in 5.2 per cent; 8 deaths occurred in cases admitted in the last stages; the total mortality was 1 per cent.

Abortion in progress. Seventy-seven per cent of the cases were admitted with fever and remained for after treatment; there were two deaths. One of these may be attributed to curettage during acute infection of the adnexa. There was no rise of temperature after curettage in patients admitted free of fever. Total results in febrile abortion, irrespective of classification (377 cases): treated by curettage, recovery, 86 per cent; complications with final recovery, 11.4 per cent; mortality, 2.6 per cent. Total number of deaths, 26; of these, 24 were admitted with well-advanced peritonitis. In 10 of these cases conservative treatment was carried out. In 2 cases of circumscribed peritonitis the pus was evacuated by vaginal incision; 3 cases of diffuse peritonitis were laparotomized; in 2 cases of incomplete abortion, with peritonitis, removal of putrid placenta was followed by laparotomy. In 3 cases with peritonitis and retained placenta, cautious evacuation of placenta was followed by no success.

Patek advises evacuation if other indications are present in abortion in progress or incomplete, irrespective of bacteriological findings.

E. C. Riebel.

Cragin: The Treatment of Ectopic Gestation. *Surg., Gynec. & Obst.*, 1912, xiv, 276. By Surg., Gynec. & Obst.

The writer distinguishes two main classes in the treatment of ectopic gestation, viz.: (1) cases of early ectopic gestation (under 6 months); (2) cases of advanced ectopic gestation.

This point of division at six months is arbitrary. In the writer's judgment, the life of the child during the first six months is negligible, while thereafter the lives of both mother and child are to be considered.

Cases of early ectopic gestation are considered under three heads as follows:

(*a*) Prior to tubal rupture, or abortion. As soon as the diagnosis of unruptured ectopic gestation is positively made, removal of the pregnant tube is indicated.

(*b*) Treatment at the time of tubal rupture, or abortion. The main symptoms here are hæmorrhage and shock. The question to consider is whether to operate immediately and check the hæmorrhage, disregarding shock, or whether to defer operation until the patient has rallied from shock. The author advocates immediate operation unless it is evident that the shock is so profound that operation would undoubtedly kill; in which case he watches the pulse closely, and if there is any improvement, he defers operation; if the pulse grows steadily worse, he proceeds with the operation as soon as proper preparations can be made. Regarding technique he emphasizes strongly that the sources of hæmorrhage are two, viz.: the ovarian artery in the infundibulopelvic ligament and the uterine artery in the broad ligament near the uterine cornu; and that the operator should proceed immediately to these two points, compressing first with thumb and finger, and then clamps. He then removes the affected tube, but leaves the unaffected one.

(*c*) Treatment of early ectopic gestation subsequent to tubal rupture, or abortion. If suppuration is present, vaginal drainage should be done; if there is only the boggy hæmatocele, then remove the product of conception through the abdominal route.

The treatment of early ectopic gestation is con-

cluded by stating that in a very few selected cases of tubal abortion the author has advised non-interference without regret.

Treatment of advanced ectopic gestation. After six months it seems justifiable to give the life of the child consideration and allow the pregnancy to approach term, avoiding spurious labor by operating at eight and one half months.

Technique of operation for advanced ectopic pregnancy. The crux of the whole matter is management of the placenta, remembering that when rupture has occurred between the layers of the broad ligament, the placenta dissects up the peritoneum and may adhere strongly to the great vessels; and that when rupture is intraperitoneal, the placenta may adhere to the intestines and other viscera. Under ordinary circumstances the safest plan in either case is to remove the fœtus from the sac and sew the latter to the abdominal wall, packing with gauze and allowing the placenta to come away gradually, the rule being to leave the placenta at the time of operation. However, when it is certain that the fœtus is dead, the rule is to wait longer than eight and one half months, with the patient under close observation, before operating, and then remove the entire product of conception at once.

The article is concluded with the statement that whenever a diseased ovary is removed and the Fallopian tube upon the same side is healthy, the possibility of external migration of the ovum with ectopic gestation developing in that tube should be considered, and the tube removed unless it be the only healthy tube of a childless woman.

FLOYD RILEY.

Siedeberg: The Significance of Albuminuria in Pregnancy. *Brit. M. J.*, 1912, Oct., 1009.
By Surg., Gynec. & Obst.

The author found marked increase in the cases of post-partum hæmorrhage in 289 cases of albuminuria, collected during the last five years from St. Helen's Maternity Hospital, Dunedin, New Zealand. Of this number only 5 cases became eclamptic, though severe toxic symptoms showed in many. These albumin cases were not necessarily nephritic, though many of them were. They found, out of 1127 cases of pregnancy, 289 cases of albuminuria, or 25.6 per cent. By comparison it was found that all complications were more numerous in the albumin cases. In multipara showing albumin, histories of previous miscarriages and still-births were more common than in those without albumin.

Placenta prævia or low implantation was 8 per cent in the albumin cases, as against 1.3 per cent in the normal cases. In many of the albumin cases the placenta was degenerate in parts.

Thus it is evident that the albumin is only the visible sign of profound metabolic changes which are taking place in the body, and if the excretory organs fail to respond to the extra demand made upon them, the waste products of cell metabolism, probably from the disintegration of protein, circulate in the blood, act as an irritant, and lead to the development of inflammatory changes in the renal tissue, causing degenerative disease and resulting in that type of nephritis of a transient nature which we usually separate from true inflammatory nephritis. If the condition is not recognized early, the waste products accumulate and will lead to more serious disease, ultimately resulting in the death of the mother from eclampsia. It is fortunate that we have this one sign — the presence of albumin — as an indication of the slow toxæmia which is going on, as in many cases there is absolutely no other symptom of the mischief which is brewing. . . . The fact that hæmorrhages are more frequent in cases of albuminuria is to be expected, since we know that renal inefficiency is associated with serious disturbances of the vascular system, manifested by an increase in the general blood pressure, by cerebral and retinal hæmorrhages and epistaxis, and finally leading to changes in every organ of the body, the uterus included.

The still-births and early deaths which so markedly preponderate in the albumin cases would be accounted for: (1) By the direct effect upon the fœtus of the toxæmic blood, as is shown by the occasional occurrence of œdema in the child. Might not the various hæmorrhages in the newborn — for example, in the skin, from the mouth, the navel, the nose, and the gastro-intestinal tract — be also produced by the circulation of this toxin in the fœtal blood? (2) Once degeneration of the placenta sets in, a certain amount of nourishment to the child is cut off and the child dies.

M. S. HENDERSON.

Walcher: Emptying the Breasts in Treatment of Eclampsia. *Zentralbl. f. Gynäk.*, 1912, xxxvi, Oct.
By Surg., Gynec. & Obst.

According to Walcher, the toxins causing eclampsia are found both in the mammary gland and in the uterus. The treatment, according to those who believe that the toxins are present in the breasts, is radical amputation of the breasts, or neutralizing of the toxins with injections of air or oxygen into the breasts. Many authors state that in eclampsia there is an overproduction of colostrum, which they think is an aid toward the removal of the toxins. If this were true, then removal of colostrum should show some improvement in the patient's condition. Walcher massaged the breasts of eclamptics until only serum exuded from the nipple. In a series of 11 cases, 7 cases were undoubtedly benefited.

J. E. LACKNER.

Lichtenstein: Influence of Death of the Fœtus on Eclampsia. *Zentralbl. f. Gynäk.*, 1912, xxxvi, Oct.
By Surg., Gynec. & Obst.

Lichtenstein's article is a critique based upon Lamsbach's recent literary research relative to eclampsia and fœtal death. Lamsbach found in

the literature 144 cases, which he arranged as follows:

1. 10 cases of cessation of eclampsia following fœtal death.
2. 68 cases of onset of eclampsia following fœtal death.
   a. 50 cases where maceration existed.
   b. 9 cases without maceration.
   c. 9 cases of vesicular mole: (1) 4 cases of partial vesiculation; (2) 5 cases of complete vesiculation.
3. 66 cases of intercurrent eclampsia.
   a. 33 cases where the child lived.
   b. 29 cases with fœtal death.
   c. 4 cases without record as to the child.

From these findings the author argues against the theory that eclampsia is arrested by the death of the fœtus. Indeed, the argument should rather stand that eclampsia following fœtal death is rather of graver prognosis. Of the second group, 68 cases, 15 mothers were lost, or 22 per cent; of the 50 where the gestation products were macerated, 14 were lost, or 28 per cent. Lichtenstein further believes that in order to arrive at a fair conclusion regarding these cases the treatment must be taken into consideration. It is then shown that, in the great majority of such cases reported in the literature, morphin was used more or less freely, as a result of which fœtal death and maternal improvement in eclampsia is not so apt to be cause and effect as that both are the result of the one factor, narcotic treatment. Evidence tending to prove that fœtal death is of favorable influence in eclampsia should be as follows: 1. The time of fœtal death and of the last convulsion must be stated exactly. 2. Medical treatment must be eliminated from the question. 3. Birth should not follow soon after fœtal death. 4. The child should not long survive the last convulsion. 5. Convulsions and coma should not persist long after death of the fœtus. 6. The mother should survive. CAREY CULBERTSON.

Peterson: Present Status of Abdominal Cæsarean Section: When and How Should the Operation be Performed? *Phys. & Surg.*, 1912, xxxiv, 407. By Surg., Gynec. & Obst.

In discussing the subject of abdominal Cæsarean section, the author considers five important questions:

First, in contracted pelvis is Cæsarean section or induction of labor most advantageous for mother and child? The induction of labor, when done properly, gives a very low maternal mortality, but the living fœtus should always be a part of the obstetric problem, and with this procedure the infant mortality is high. The author calls attention to the fact that it is impossible to know exactly the size of the pelvis or the fœtal head, or to estimate the propulsive strength of the uterine pains. Because of this, one would hesitate to advise either Cæsarean section or induction of labor in primiparæ showing a moderate contraction without first giving a test of labor.

Second, under what condition is craniotomy on the living child indicated in preference to Cæsarean section? When the mother is septic there is a high mortality attending Cæsarean section, while emptying the uterus from below gives the septic mother a greater chance for recovery. When the fœtus is feeble and not likely to live under any condition, it is an ill-advised procedure to expose the mother to Cæsarean section. When a marked deformity of the child or a monster is diagnosticated, craniotomy is preferable to Cæsarean section. In the hands of the unskilled either operation is dangerous to the mother, but because the peritoneal cavity is uninvaded craniotomy is less dangerous.

Third, in what cases of contracted pelvis is pubiotomy preferable to Cæsarean section? In marked contractions of the pelvis, pubiotomy does not compete with abdominal Cæsarean section; but when the conjugate vera measures from 7.5 to 9.5 centimeters, it does. After three or four hours of the second stage of labor without advancement, and easy traction with forceps fails to accomplish anything, pubiotomy is the better operation.

Fourth, under what septic condition is Cæsarean section indicated, and when under similar conditions is the operation unjustifiable? The writer shows that premature rupture of the membranes and repeated vaginal examinations lead to infection, and at times are a distinct contraindication to Cæsarean section.

Fifth, the type of operation to be selected in different cases. The Porro operation is favored in septic cases. The extraperitoneal operation is discussed, and the author's method of performing the classical Cæsarean section is given in detail.

LABOR AND ITS COMPLICATIONS

Humpstone: Pituitary Extract in Inertia Uteri. *Am. J. Obst.*, N. Y. 1912, lxvi, 357. By Surg., Gynec. & Obst.

Humpstone finds that pituitrin fails occasionally for some unknown reason. In 64 cases he has seen no unhappy results. He uses 4 cc. of P. D. pituitrin as initial dose, and gives 3 doses at 20-minute intervals. In 20 cases where blood pressure was recorded, the highest rise in pressure was 20 points and the average was 8. He records a case where 4 cc. was given three times in three successive days in an attempt to produce an abortion, without result. In ten women at term or over estimated time he gave three doses of 4 cc. each on three successive days without inducing labor. Before effacement is fair and dilatation is at least three figures, he would advise against pituitrin. In postpartum atony he believes that pituitrin is valuable, but believes that ergot should be also given. In Cæsarean section he gives it after the placing of the sutures, and reports complete success in 6 or 7 cases where it was administered.

N. SPROAT HEANEY.

MISCELLANEOUS

Loscohlen and Closson: Pituitary Extract in Obstetrics and Gynecology. *J. Mich. St. Soc.*, 1912, xi, 650. By Surg. Gynec. & Obst.

Loscohlen and Closson, writing from Parke Davis & Co.'s laboratory, state that from this limited clinical use of pituitrin they can confirm the observations of others that pituitrin is a very valuable agent in the treatment of uterine inertia, and that, administered in the first and second stages of labor, it greatly strengthens the uterine contractions, which in their cases were always rhythmical and never tetanic.

Using dogs, they took tracings of the uterine contractions and blood pressure to determine the effects of pituitrin, which they gave intravenously. In the normal dog they found that the uterine tone was increased simultaneously with a marked increase in blood pressure. The increase in blood pressure is of only very short duration. With lactating animals a more marked effect was noted: decided stimulation of uterine contraction and increase in uterine tone, these effects being less marked as the period of lactating advances. In animals which had just whelped, very marked contractions occurred within one minute of injection. The contractions, which were at first stormy, later became rhythmical and the rhythm and force continued during the period of observation (two hours). In an animal near term, a tracing shows an intense primary contraction appearing on injection. The relaxation from this primary contraction is delayed; later relaxation occurs and regular pains appear which persist during the period of observation.

They have given dogs doses equivalent, according to weight, to 100 cc. in the human, with no untoward effects except a slight temporary glycosuria. In one dog the equivalent of 250 cc. for the human produced considerable uneasiness, some urinary and fæcal activity, and a mild glycosuria, which persisted for about three weeks. After the first one or two days the dog's condition was approximately normal and no permanent injurious effects were observed. They have given doses as high as 1 cc. per kilo to dogs near term without inducing labor.

Glycosuria does not become manifest after the use of pituitrin on animals for several days, and after enormous doses this may persist for two to three weeks. Relative large doses are requisite to the production of glycosuria, and they believe that it would never be produced by therapeutic doses. The administration of pituitrin produces a temporary decrease in the normal flow of the pancreatic juice, which is followed by a short increase and then a continued decrease in pancreatic activity. Pituitrin also inhibits the stimulant action of secretion on the activity of the pancreas. They cannot state this action on the pancreas has anything to do with the apparent effect of disturbed sugar metabolism.

N. Sproat Heaney.

Bossi: Importance of Epinephrin Treatment of Osteomalacia. *Zentralbl. f. Gynäk.*, 1912, xxxvi, Oct. By Surg., Gynec. & Obst.

In 1907–8 Bossi showed from experimental work on sheep and from clinical results that (*a*) in acute cases of osteomalacia and in acute exacerbations of chronic cases, suprarenal extract gave the best and quickest results; (*b*) the more acute the attack the higher the dosage of epinephrin; (*c*) this treatment should be given a trial before resorting to surgical methods; (*d*) a disturbed function of the suprarenal gland is a portion of the picture of osteomalacia.

Bossi cites a case of osteomalacia in a married woman, 40 years old, sterile on account of an acute antiflexion. For 13 years, dating from a time a few months after her marriage, she had been undergoing treatment for arthritis deformans, sciatica, tuberculosis of the hip, and rheumatism. Finally, when a diagnosis of osteomalacia was made, she was given 150 injections of epinephrin, 1 cc. of 1:1000 solution (the highest dose), during a period of 9 months, with a complete cure except for the deformity wrought during the 13 years of the disease.

J. E. Lackner.

Newell: Indications for the Major Obstetrical Operations. *Boston M. & S. J.*, 1912, clxvii, 383. By Surg., Gynec. & Obst.

Newell discusses here the indications and contraindications for the classical Cæsarean section and for pubiotomy, believing that primary Cæsarean section, i. e., operation before labor begins or in the early hours of a slight labor, is attended with practically no maternal or fœtal mortality or morbidity. He thinks that "all patients in whom a serious doubt exists as to the probability of a spontaneous or easy operative labor are best treated by primary Cæsarean section, and that the test of labor, except in cases where the patient chooses to undergo this test with a full understanding of the dangers which it entails, should be obsolete. Believing that patients who are in poor physical or nervous condition and have not reacted well to the strains of ordinary life are seriously threatened with invalidism as a result of a prolonged labor or severe pain, and though there may be no question as to the outcome of labor in such a one, regarding the life of either mother or child, he would advise that such a patient be sectioned, on the basis that the patient is in no condition to stand the strain of labor when it can be avoided by a safe surgical procedure. He holds it conservative to confine by section elderly primiparæ who may never have another child, except when examination shows a distinctly small child and little or no rigidity of the soft parts; unless the mother declines he would also perform it in primiparæ who have been married a number of years without becoming pregnant and in women who have aborted repeatedly and at last have with difficulty been brought to term, since Cæsarean section offers the best chance for a living child. He advocates Cæsarean section for those who have had

a secondary operation for repair following previous deliveries, since delivery per vias naturales would probably again necessitate a secondary operation.

Newell believes that in placenta prævia close to term, with mother and child in good condition, a Cæsarean section is occasionally advisable, particularly if the cervix is long, rigid and not taken up, or if there is a marked pelvic contraction; if, however, the cervix is soft and easily dilatable, or if child is markedly premature, he would advise pelvic delivery, especially if patient has lost much blood.

He considers it unwise to section eclamptics except in presence of a pelvic indication or œdema of the vulva.

He considers it good practice in fibroids and Cæsarean section to have the uterus removed as a routine at a second operation.

He would do a pubiotomy only in those cases which have been in labor for some time, when a pelvic extraction of not less than 7½ cm. exists and the child is alive and vigorous.

Finally he concludes that in such a case pubiotomy is safer than a section and hysterectomy.

N. Sproat Heaney.

Murlin and Bailey: Protein Metabolism in Late Pregnancy and the Puerperium. *J. Am. M. Ass.*, 1912, lix, 1522. By Surg., Gynec. & Obst.

Murlin and Bailey studied the partition of the nitrogen of 100 urines, and believe that the ammonia and the amido-acid with the undetermined nitrogen fractions may be as high, or higher, in normal women in the last month of pregnancy than in women who have pre-eclamptic signs, or even eclampsia itself. Convulsions themselves do not necessarily produce acidosis. Following an eclamptic attack, high ammonia is often due to decomposition of urine within the bladder from contamination by the catheter. Their conclusions are as follows:

1. The nitrogen fractions of urine in the last month of pregnancy are but slightly different from those in the non-pregnant.

2. Normal women in the last month of pregnancy may have an ammonia-nitrogen as high as 17 per cent (after catharsis) and a combined amido-acid and undetermined nitrogen of 10 per cent.

3. Percentage figures are alone deceiving and of little value, for the total nitrogen is dependent on the amount of food absorbed, and this is affected by intake, nitrogen retention, catharsis, etc.

4. With all the clinical signs of pre-eclampsia, the nitrogen partition may be normal even up to and for twenty-four hours following the development of convulsions.

5. The nitrogen partition as an evidence of metabolic process cannot be said to offer an index to the pre-eclamptic or the eclamptic condition. Alterations in the structure of the liver, and finally in the metabolic functions of this organ may be, for all that the urinary analysis shows, the result of toxæmia which ultimately leads to eclampsia, rather than the cause of the toxæmia. L. G. Dwan.

Haussling: Blood Pressure in Pregnancy. *J. M. Soc. N. J.*, 1912, ix, 242. By Surg., Gynec. & Obst.

The author analyzes 682 systolic blood pressure readings on 140 women apparently in good health. In this series the lowest systolic reading was 80 mm. of mercury; the highest, 150 mm. of mercury. The average was 113 mm. In about 84 per cent of the cases the blood pressure fluctuated between 100 and 135 mm. He has seen convulsions occur but once with blood pressure of less than 160 mm.

After discussing fully the shortcomings of our various methods of recognizing toxæmia of pregnancy before the onset of convulsions, the writer makes a plea for the routine use of the sphygmomanometer as a rapid, inexpensive, and accurate guide to its recognition. His conclusions are as follows:

1. In the great majority of normal pregnancies systolic blood pressure fluctuates between 100 and 135 mm. of mercury.

2. The high and low limits in normal cases are 150 and 80 mm., respectively.

3. A reading of over 150 mm. should be considered abnormal and, even in the absence of all other symptoms of toxæmia, should put the physician on his guard.

4. Eclampsia rarely occurs with blood pressure of less than 160 mm.

5. Blood pressure observation is an additional aid to, and not a substitute for, urinalysis in the recognition of the pre-eclamptic state.

Cathala: Ablation of the Corpus Luteum at the Beginning of Pregnancy in Women (L'ablalation du corps jaune au début de la grossesse chez la femme). *La Gynéc.*, 1912, xvi, Aug. By Journal de Chirurgie.

Fränkel maintains that at the beginning of pregnancy the corpus luteum is necessary to the development of the egg. Experimentation on animals (the rabbit, the guinea pig, and the dog) has frequently shown that the destruction of the corpus luteum during the first twenty days of gestation was followed by an arrest of pregnancy.

Now, were the involution of the corpus luteum in woman not to begin until the end of four months, one might conclude that miscarriage was due to the destruction of the corpus luteum during the first four months.

The author reports a case of ovariotomy for a cyst with ablation of the corpus luteum at the beginning of pregnancy; delivery took place at term. From the literature he has gathered 11 analogous cases, with only 2 miscarriages; these latter, however, could be explained by a predisposition of the women, who had already had miscarriages several times. It seems, then, that in woman the integrity of the corpus luteum is of no importance for the development of pregnancy. L. Chevrier.

GENITO-URINARY SURGERY

Durand and Verrier: Paranephritic Tumors (Les tumeurs paranéphrétiques). *Lyon Chir.*, 1912, viii, 389. By Journal de Chirurgie.

As the result of a personal case, the authors give a short study of these neoplasms, which are rare.

Their patient, a woman of 40 years of age, had for ten years suffered from painful abdominal crises, which frequently ended in vomiting. Within the last two months these crises had become more violent, the patient had become emaciated and had remarked that her abdomen had increased in size. An enormous tumor was found, which filled out the lower right half of the abdomen, extending from the false ribs to the iliac fossa, reaching beyond the median line and occupying a portion of the left hypochondrium. This tumor was irregular in shape and lobulated, hard in places, pseudofluctuant elsewhere, and gave a dull note on percussion. Hematemesis, which supervened at the beginning of the period of the patient's sojourn in the hospital, decided in favor of rapid intervention.

With the first maneuvers of the operation, the tumor burst. It enclosed masses of clots and neoplastic growths. Adhesions to the large perivertebral vessels rendered ablation completely out of the question, so that it was possible to remove only a portion of the tumor, together with the right kidney, which it had enclosed without invading it; the rest was marsupialized. An intestinal flexure which had been torn in the course of removing the tumor was attached to the abdominal wall and an artificial anus made in the latter. Death occurred the next day.

At the autopsy it was found that the tumor adhered to the vena cava and the aorta, enclosed an otherwise intact suprarenal gland and the right half of the colon, and compressed the stomach without invading it. Microscopic examination showed sarcoma.

Hundreds of these paranephritic tumors are known and three fourths of them have been encountered in women. From an anatomical point of view they may be divided into four groups: (1) connective tissue tumors, fibromata, lipomata, and above all, sarcomata; (2) epithelial tumors of Wolffian origin, only two cases of which have become known; (3) mixed tumors (a half score of cases); and (4) cystic tumors (30 cases, according to Chamoff). The bulk of these tumors is always considerable and frequently enormous (up to 24 and 36 kg.).

Clinically, they manifest themselves by the obvious mechanical phenomena which result from their volume. Other signs are compression of the perivertebral vessels (œdema, ascite, and varicocele), of the intercostal and lumbar nerves (painful irradiations), of the intestines (constipation, chronic obstruction), and of the stomach (signs of pyloric stenosis). On the other hand, neither disturbance of renal secretion nor compression of the ureters have ever been observed. The exact diagnosis can, in general, be made only after the operation. The latter is always difficult and grave, and at times impossible on account of the volume and the adhesions of the tumor. Chamoff gives the following statistics: out of 56 cases operated, 16 deaths, 32 recoveries, and 6 recurrences. In most cases the kidney was removed together with the tumor, even though the latter had not invaded it.

CH. LENORMANT.

Pousson: Surgical Treatment of Calculus of the Kidney (Traitement chirurgical des calculus du rein). *J. d'Urol.*, 1912, ii, 475. By Journal de Chirurgie.

In an earlier dissertation, which was analyzed in the *Journal de Chirurgie*, the author studied the surgical treatment of aseptic lithiasis of the kidney; septic lithiasis is the subject of the present study.

It must be borne in mind, in the first place, that the anatomico-clinical varieties of septic lithiasis are so complex and so difficult to recognize that in a great number of cases the surgeon hesitates to decide between incision of the kidney and its extirpation.

Pousson has intervened in 22 cases of infectious calculus, the results in these cases being as follows:

Two nephrectomies led to 1 death at operation, 2 delayed deaths, and 5 recoveries.

Nine nephrectomies led to 2 deaths at operation and 7 recoveries.

Four nephrotomies, followed by secondary nephrectomies, led to 4 recoveries.

One nephrectomy, followed by nephrotomy of the remaining kidney, resulted in death.

From the immediate point of view, nephrotomy is proven superior to nephrectomy (12.5 per cent of mortality in the former as against 22 per cent in the latter); from the point of late and therapeutic results, it is shown to be inferior to nephrectomy.

We must distinguish three clinical types of suppurating lesions which result from the presence of one or more stones in the infected kidney: (1) calculous pyelitis, (2) calculous pyelonephritis, (3) calculous abscesses of the kidney.

The first type occurs alone, with exclusion of all forms of suppurating lesions of the parenchyma of the kidney, the last two frequently appear in association. In 22 cases, Pousson had 5 pyelites, 1 pyelonephritis, 1 abscess of the kidney, and 2 cases of abscess of the kidney and pyelonephritis combined.

For calculous pyelitis either nephrotomy or

pyelotomy is proper, the choice of operation depending upon the presence or absence of more or less intense adhering perinephritis, which does not permit removal of the kidney from the cavity, a condition which is unfavorable to pyelotomy. Evenness of the walls of the suppurating foci favors complete evacuation of the pus and concretions.

If the infectious phenomena continue to develop after nephrotomy, secondary nephrectomy will serve to check them.

In calculous pyelonephritis, the presence of diverticular prolongations, which are more or less embedded in depressed sinuses in the renal tissues, renders drainage and disinfection hazardous. Consequently pyelonephritis, with multiple persistent foci and ramified or numerous calculi which are difficult to extract, involves nephrectomy if the affection is unilateral and the opposite kidney is healthy.

In the third type of suppurating renal nephritis, that is collections of pus scattered throughout the parenchyma, which is a rarer form than the two types previously mentioned, incision and direct curettement of the pockets may suffice if the latter are not very numerous and superficial; nephrotomy itself becomes insufficient if it is found that foci are scattered in great numbers throughout all parts of the parenchyma, and primary nephrectomy is ordinarily indicated. J. TANTON.

Kouznetzky: The Surgical Treatment of Renal and Ureteral Calculi with a Report of 82 Cases. *J. Urol.*, 1912, viii, 522.
By Surg., Gynec. & Obst.

The author advocates pyelolithotomy as the most satisfactory operation for renal calculi. He leaves the fatty capsule attached to the anterior wall of the pelvis of the kidney and operates through the exposed posterior surface. Secondary hæmorrhage and serous formation are not as common after this operation as after nephrotomy. In cases where the stone cannot be removed through the incision in the pelvis, a nephrotomy of limited extent may be used as part of a combined operation. He believes that this combination is better than a primary nephrotomy, as the injury to the kidney parenchyma is less and secondary hæmorrhage is less frequent. In such an operation he found that the wound in the pelvis healed before the wound in the parenchyma.
VERNON C. DAVID.

Rövsing: Tuberculosis of the Kidney. *Ann. Surg.*, Phila., 1912, lxi, 521. By Surg., Gynec. & Obst.

Tuberculosis of the kidney may occur without albuminuria, but the presence of albuminuria, pyuria, or cystitis should always lead to a careful microscopic and bacteriological examination of the urine. As to the diagnosis of the kidney involved in tuberculosis, the author speaks strongly in favor of ureteral catheterization and the careful examination of the urine taken from each kidney. A toxic albuminuria may be present on the well side, as albumin without cellular elements or organisms would suggest.

When the bladder is so diseased that ureteral catheterization is impossible, a bilateral lumbar incision, with exposure of each kidney for examination, is advisable to determine the localization and extent of the process. As for functional tests of the kidneys' efficiency, he relies only on the urea output from each kidney. He takes a more cheerful view of the prognosis of kidney tuberculosis than formerly, and urges early operative removal of the deceased kidney if it is unilateral. Ascending urogenital tuberculosis offers a more serious prognosis, due to the fact that kidney involvement is more likely to be bilateral and that the diseased prostate and bladder lead more often to urinary extravasation. After removal of the diseased kidney, he sutures the ureter into the wound to prevent formation of retroperitoneal tuberculosis.

In tuberculosis of the bladder, if the source of infection has been removed, he used 6 per cent carbolic acid solution as an irrigation, with good results. In all he reports 145 nephrectomies for renal tuberculosis, with 7 deaths.
VERNON C. DAVID.

Waldschmidt: Tuberculosis of the Kidney. *Berl. klin. Wchnschr.*, 1912, xlix, Sept.
By Surg., Gynec. & Obst.

The records of 40,621 post-mortems held in the hospital were examined for occurrence of chronic local kidney tuberculosis; 119 cases were found — males 68 per cent; females 32 per cent. Age: 1 to 10 years, 2.5 per cent; 20 to 30, 8.4 per cent; 30 to 40, 27.7 per cent; 40 to 50, 26 per cent; 50 to 60, 7.6 per cent; 60 to 70, 5.8 per cent. The kidney tuberculosis was bilateral in 70.6 per cent, unilateral in 29.4 per cent. It occurred on the right side in 11.7 per cent, on the left side in 17.6 per cent. Tuberculosis of other organs was found in 118 cases. Involvement of other organs was as follows: Lungs, 89 per cent; male sexual organs, 20.1 per cent; female sexual organs, 0.8 per cent; osseous system, 10 per cent; intestinal tract, 31 per cent; lymph glands, 22 per cent; skin (lupus), 0.8 per cent. One hundred surgical cases, beginning with the year 1900, gave the following statistics: male 52 per cent, female 48 per cent. Age: 1 to 10 years, 1 per cent; 10 to 20, 12 per cent; 20 to 30, 41 per cent; 30 to 40, 33 per cent; 40 to 50, 19 per cent; 50 to 60, 4 per cent; 60 to 70, 0. Of the patients, 28 exhibited active tubercular lesions in other organs, namely: lungs, 22 per cent; lymph glands, 3 per cent; bone, 1 per cent; male sexual organs, 2 per cent; skin (lupus), 2 per cent. Healed tuberculosis was found in 16 patients.

Involvement of the bladder as shown by cystoscopic examination: Group 1, findings not certain, 14; Group 2, involvement of bladder and ureter on the affected side, 43; Group 3, general bladder involvement, 35. In 9 deaths occurring in the surgical cases, autopsies were held. Where one-

sided kidney involvement was diagnosed intra vitam, diagnosis was confirmed at autopsy. Waldschmidt concludes that a correct diagnosis of the affected side is possible with quite a degree of certainty by employment of chemicophysical and functional methods of examination. The autopsies did not show ascending infections. A tubercular focal infection of the kidney from a primary focus is rare, but the sound kidney is in great danger when this has taken place.

Spontaneous cure. Waldschmidt reports one case from his own practice, and cites a case recorded by Ekehorer in Folia Urologica. Four cases in the post-mortem material showed occlusion of the ureter, which is commonly the cause of total destruction of the kidney and the so-called cure. The kidney was totally destroyed in all these cases. Only in one of these was there a probable final cessation of the tubercular process, but the other kidney was affected. Hence, spontaneous cure is of rare occurrence. By the time obliteration of the ureter brings about this state, the other kidney is usually involved. In his own case he cannot say positively that the process is extinct, and even if so, the result is no better than that of a nephrectomy. If this had been done early, the patient would have been spared long years of suffering and danger.

Tuberculin treatment is considered uncertain, as even untreated cases may have long periods of absolute freedom from any symptoms. Kümmel reported 4 cases of extirpation after more or less extended tuberculin treatment. None of the kidneys showed signs of healing. In one case, which was cystoscoped frequently during the administration of the tuberculin, the associated bladder tuberculosis made perceptible progress. E. C. Riebel.

Braasch: The Results of the Early Diagnosis of Urinary Tuberculosis. *Interstate M. J.*, 1912, xxv, 863. By Surg., Gynec. & Obst.

Braasch's study is based upon the material examined at the Mayo clinic, and includes 212 cases operated upon for renal tuberculosis. One of the most important facts developed by an analysis of this material is that so many of the patients were sufferers from renal tuberculosis for from one to five years before receiving surgical attention. The reasons for this delay may be grouped under three heads: (1) The true nature of the disease still too frequently remains unrecognized by the general practitioner; (2) it is not generally known that surgery is the best means to cure tuberculosis of the urogenital tract; (3) there exists a widespread belief that renal tuberculosis can frequently be cured by means other than surgery, particularly through the use of tuberculin.

Braasch urges that every case of diurnal bladder irritability with more or less pyuria, persisting over several months, should be considered as renal tuberculosis, until proved otherwise. He then clearly outlines the method by which differentiation is made between tuberculous and non-tuberculous bladder irritability. If a careful examination of the urine shows no pus, tuberculosis can be excluded in most cases. If pus is present in considerable quantity, the diagnosis of tuberculosis is probable, and depends upon demonstrating the existence of the tubercle bacillus in the urine. If looked for repeatedly, this bacillus can be found in the urine in practically every case of early renal tuberculosis. If, however, it cannot be found, we still have an infallible test in the inoculation of a guinea pig with the sediment of a catheterized specimen of urine. If, owing to circumstances, the guinea pig test is not available, and the urine examination doubtful, we may still secure corroborative testimony by physical and cystoscopic examination. For example, a nodular epididymis or prostate, unaccompanied by a history of venereal disease or nocturnal frequency, points almost certainly to renal tuberculosis. Likewise, thickened ureters, renal tumor, temperature elevation, loss of weight, radiographic data, etc., are valuable points elicited by physical examination. The cystoscopic picture of bladder tuberculosis, while not pathognomonic, can usually be recognized by the experienced observer.

Granted that a diagnosis of urinary tuberculosis has been established, the next important point is to localize the lesion. This process of localization is solely one of cystoscopic technique and depends upon determining: (1) the character of bladder infection; (2) primary or secondary foci in the prostate or epididymis; (3) which kidney is involved, and the degree of involvement; (4) functional capacity of remaining kidney.

With the diagnosis established and the localization definitely determined, the question of treatment presents itself as the important final point. Under this head Braasch makes the definite statement that, while incipient renal tuberculosis may occasionally recover under treatment by non-surgical methods, such instances are so exceptional that they cannot be relied upon. He quotes the records of 71 unoperated cases to substantiate the statement. In many cases of so-called spontaneous cure, the ureter is obliterated and the kidney exists as a caseous, semisolid, menacing source of infection.

On the other hand, it is generally recognized that surgical treatment effects a cure in the majority of cases. At the Mayo clinic, the immediate operative mortality in 203 cases was 2.9 per cent; 82 per cent were alive one year after operation, 69 per cent being well or greatly improved, and 13 per cent showing little or no improvement in bladder symptoms. Of this latter group of cases, 83 per cent had had their infection more than two years before operation.

As contraindications to operative procedure there are: (1) advanced pulmonary infection; (2) multiple lesions of bones, joints, or prostatic abscess with perineal fistula; (3) peritonitis; (4) marked bilateral involvement; (5) clinical evidence of renal insufficiency. M. G. Seelig.

Bernard and Heitz-Boyer: Results of the Different Methods of Treatment for Renal Tuberculosis (Résultats comparés de différents traitements de la tuberculose rénale). 26th Ass. fran. d'Urol., Oct., 1912. By Journal de Chirurgie.

Bernard and Heitz-Boyer distinguish several forms of renal tuberculosis and, eliminating follicular, epithelial, and insterstitial nephritis, devote their report exclusively to chronic infiltrating, ulcerative, caseous tuberculosis of the kidney. It was thought that this question was closed, as the immense majority of clinicians had been convinced by the works of Albarran and others that nephrectomy was the treatment of election. Nephrotomy gives bad results, partial nephrectomy is followed by recurrence and is abandoned by all surgeons. Simple medical treatment, hygienic and medicinal, was looked upon as inefficient. It has not been demonstrated that heliotherapy and radiotherapy have curative value. But to-day some clinicians wish to substitute for nephrectomy certain antitubercular agents said to be specific. It behooves us then to compare and criticise the results obtained by nephrectomy and by the so-called specific agents.

Nephrectomy is based upon a certain number of anatomical, clinical, and experimental facts. Renal tuberculosis is met either in individuals having other tubercular foci, usually small and inactive, or in subjects apparently free from other tubercular taints. It is always primary as regards other segments of the urinary apparatus. It is of descending, hæmatogenous origin. These reasons suggest the removal of the renal focus, feasible owing to the unilaterality of the lesion.

Renal tuberculosis is unilateral at the onset and remains so during a long period of its evolution. Tuberculosis in the other kidney is more likely to occur if the kidney primarily involved is not removed. For instance, in 1,022 cases, Israel noted after nephrectomy secondary tuberculosis of the other in only 1.6 per cent of the cases. In non-operated patients there was secondary tuberculosis in 29 per cent of the cases. The transference of the bacilli from one kidney to the other is more frequent than the transference of bacilli from an extrarenal focus. When the condition has become bilateral it is less accessible to surgical action. Renal tuberculosis is of slow evolution. In a large number of patients the duration of the disease from the time it is recognized first clinically, is from three to four years; very often, it is of longer duration. This slow evolution is characterized by periods of intermission, which may be very prolonged and which should not be mistaken for cures. In fact, the disease is incurable spontaneously.

As to the four anatomical processes advanced as evidence of renal tuberculosis, one (cretaceous tuberculosis) has not been demonstrated, the others (sclerosis, serocystic or caseocystic degeneration) are rare and do not result in real cures, as the lesions do not lose their virulent activity and remain a menace to the system, and especially to the other kidney, where they determine very often absolutely latent nephropathies. Clinical facts also do not seem to warrant belief in the spontaneous cure of renal tuberculosis. Furthermore, renal tuberculosis has a tendency to tubercularize the ureter and the bladder, the organs of generation, the second kidney; in fact, the entire organism.

All these considerations invite surgical treatment. Each kidney must be studied separately as to its anatomical state and as to its functional value. As to the physiological gravity of the removal of one kidney, all clinical and experimental data show that it is nil.

Operative mortality is from 1 to 6 per cent. The efficacy of intervention is as remarkable as it is benign. The remote mortality is but 15 per cent. It is thus seen that nephrectomy saves from death four fifths of the patients having renal tuberculosis. Fifty per cent of the surviving patients remain completely cured. The time of the operation has a great influence upon the general state of the organism. Early operations give the most favorable results. So-called specific medication, in the opinion of the authors, has not proved of value. Analysis of the cases under observations shows no real cures, that is, cures controlled by ureteral catheterization and inoculation of urine. The authors are of the opinion that, barring cases in which nephrectomy is impossible, the treatment for renal tuberculosis is the removal of the diseased kidney as soon as the diagnosis is made.

Cathelin is also of the opinion that treatment with tuberculin has not proved valuable and can show no certain scientific or experimental cures. Improvement such as can be obtained by well conducted medical treatment attends its use. Surgical treatment has proved its efficacy. He reports 75 early nephrectomies with only 2 deaths.

Legueu believes there are two points to consider: one is indisputable, the necessity of early nephrectomy; the other is disputable and debated, that is, the value of conservative treatment compared to nephrectomy. He has had 120 patients from all walks of life, and he shares the opinion of those who condemn conservative treatment. Conservative treatment is not supported by anatomical facts. He has seen the evolution of recent lesions during the administration of tuberculin; it is in vain that one looks for cicatricial lesions. He thinks that in some cases treatment by tuberculin is even dangerous, because he has seen febrile reactions, disseminations not noticed before the use of tuberculin. This is why he advocates nephrectomy in unilateral renal tuberculosis.

LeFur reports 22 cases of nephrectomy for renal tuberculosis. There were no operative and no post-operative deaths. One patient in complete anuria died, but all the other nephrectomized patients operated upon from six months to twelve years previous to this report are still alive, and most of them are cured. LeFur also presented 81 cases of renal tuberculosis treated medically, with 4 deaths.

In these the proportion of cures was from 30 to 40 per cent. Naturally, the term "cure" is elastic in these cases.

The treatment of renal tuberculosis must be either medical or surgical. The indications for intervention are furnished by the persistence of local troubles (cystitis, renal pain), by the aggravation of the general state, or by marked diminution of renal function. At the onset of the disease, especially when there is only a small quantity of albumin and few casts, with or without pyuria and frequent micturition, medical treatment should be tried. After nephrectomy medical treatment should always be used. We must not forget that renal tuberculosis is not a primary tuberculosis. All individuals having a tubercular kidney, even after removal of the diseased organ, should be considered as subjects of latent tuberculosis, and be kept under supervision and medical treatment.

Hogge as yet is not an advocate of tuberculin therapy. He has tried it in four cases, for periods ranging from three and six months to one year. He has had only bad results. One of these cases was nephrectomized after four months of treatment, and the other after nine months. Neither kidney showed any evidence of healing. He insists upon the usefulness of nephrectomy in bilateral renal tuberculosis when there is a marked difference in the functional value of the two kidneys. In renal tuberculosis, he was able to convince himself by repeated ureteral catheterization, that when one kidney is markedly invaded with tuberculosis, the other kidney is usually also affected (albuminuria, pyuria, tubercular bacilluria).

Rafin has performed 165 nephrectomies for renal tuberculosis. As to his results, he has looked up his cases and finds that 49 of his patients have died, 63 are incompletely cured, and 53 are completely cured. Those patients are considered as incompletely cured whose urine contains bacilli, and as the bacilli in a certain number of cases cause vesical and ureteric lesions, it can easily be seen that the number of completely cured will increase as these ureterovesical lesions heal.

Pousson has treated with tuberculin only a few cases of renal tuberculosis, and those in the presence of unfavorable conditions; that is, only such subjects as had so advanced lesions that surgical intervention was contraindicated. Since 1900 Pousson has performed nephrectomy in all cases of nephrotuberculosis, the only contraindication being lesions of the other kidney or a bad general condition of the patient. Exceptionally he performs nephrotomy. Like other surgeons, he considers this an operation of necessity, giving in itself no therapeutic results but being of value when serious accidents exist, as it places the patient in a state to withstand ultimate nephrectomy. In 70 of his patients who survived the operation, he lost 9 in the year following the operation and 2 in the other years. Fifty-nine of his patients are still alive. In some the operation was performed 12, 13 and 15 years ago. After nephrectomy, vesical symptoms are at times very annoying. They sooner or later subside. One of the curative effects is found in the regular course of pregnancy in nephrectomized patients and the tolerance which these patients show to accidental and operative traumatisms.

Chevassu calls attention to the possible invasion of the suprarenals in the course of renal tuberculosis. He sees in it another argument in favor of early extirpation of tubercular kidney. He insists upon the advantages of the lateral subperitoneal route for extirpation of the tuberculous kidney. Owing to the total closure of the operative wound and to the independent lumbar drainage, the nephrectomy wounds for tuberculosis heal easily without fistula formation.

Bringersma is more than ever convinced that early nephrectomy is the method of choice in unilateral renal tuberculosis. He has treated 22 cases of renal tuberculosis by Koch's tuberculin and has obtained no results. He has removed 3 kidneys from patients who had been elsewhere treated with tuberculin. Examination of these kidneys did not show the slightest evidence of the curative action of the medicine. On the contrary, in 3 of the cases he found, adjacent to old lesions, lesions that were undoubtedly recent.

Marion says that cases of cure by medical treatment are few and do not admit of much scrutiny. Medical treatment cannot be adopted until it has been demonstrated that it cures rapidly and frequently without exposing the patient to diffusion or aggravation. He reports 3 patients in whom this specific treatment was not followed by any improvement of the vesical lesions, attenuation of the painful symptoms or any clearing up of the urine, or by any general improvement.

Keersmaecker began treating renal tuberculosis with tuberculin in 1905. He has treated 650 cases of tuberculosis of the urinary channels. He reports in detail 12 most unfavorable cases in which were noted the complete syndrome — pyuria, strangury, pollakiuria, emaciation, etc. Despite the unfavorable nature of these cases, the patients, still under observation, present no symptom or only negligible symptoms. As proof of his assertions, Keersmaecker presents radiographs and specimens of urine. He says that with well applied treatment he has obtained in hundreds of his patients satisfactory results. If cure is not obtained, it is either because the physician did not apply the treatment well, or because the patient did not come for treatment until the other kidney was irremediably compromised.

Paul Delbet had 4 nephrectomies for unilateral renal tuberculosis and 4 recoveries. The cases were operated upon 4, 6, 10 and 11 years ago. A nephrectomy in a case of bilateral renal tuberculosis prolonged life for two years. A patient upon whom Delbet did a partial nephrectomy 7 years ago is still alive. During the same period, three patients whom he treated medically died. One case treated with immunizing bodies resulted in death. Delbet

has obtained two marked improvements; one by Calmette's tuberculin, the other by sulpho-alliaceous essences. These patients did not present operable lesions.

Pasteau does not know of any case of renal tuberculosis cured by medical treatment. No anatomical proofs have been advanced, and the clinical reports are few and very incomplete. Renal tuberculosis is an extremely frequent affection. It is progressive. Nephrectomy can cure it. Operative mortality is from 1 to 6 per cent. The large number of complete cures, 50 per cent, should decide the surgeon, as without nephrectomy the patient will not recover. Medical treatment in those cases where nephrectomy is possible is positively dangerous, because it suppresses or retards an operation necessary to secure cure.

Carlier has performed 133 nephrectomies, with an operative mortality of 6 per cent. In his last 50 operations, his operative mortality has been 3½ per cent. He advocates nephrectomy for renal tuberculosis, insisting upon an early operation so as to save his patients the contamination of the inferior urinary channels and, in men, of the generative organs. With such favorable results he does not believe himself justified in preferring surgical treatment to so-called specific medical treatment, the value of which is yet to be demonstrated. He has treated 8 patients, previously nephrectomized, with Spengler's immunizing bodies. These patients presented either lesions of the other kidney or of the bladder or the generative organs. The results which he has obtained have not satisfied him as to the value of specific medication, but he has noticed no inconvenience attending its use.

Oraison says that it is dangerous to expect good results from medical treatment. This form of treatment is only of value at onset of the affection when the kidney is still in fairly good state. Our methods of examination do not enable us to know whether the disease is beginning, nor do they inform us of the extent of kidney destruction. Twenty-five nephrectomies have given him 4 deaths, 5 improvements and 16 cures.

Lavenant does not wish to attack surgical treatment, but he says there is a large place for medical and serum treatment which places the patients in better condition, whether they are operated upon or not. Patients subjected to the immunizing bodies of Spengler have been much improved; in one there was an improvement in the patient's general condition, and disappearance of pus and of bacilli in the urine (demonstrated by bacteriological examination and inoculation of guinea pigs). He reports several cases benefited by the immunizing bodies of Spengler.

Castaigne has records of 112 cases of renal tuberculosis treated medically. Of these, 70 were patients with bilateral renal tuberculosis or general tuberculosis. These cases could not be operated upon. Twenty-two other patients had already been nephrectomized, and 10 of these presented a unilateral tuberculosis. In 102 patients, 8 appear cured, 22 show gradual improvement, in 30 there was only slight improvement, and in 42 no manifest improvement. If one considers that 102 of these patients were inoperable, and that a most grave prognosis had been made in every case, the statistics are really eloquent in favor of medical treatment. The author believes that the conclusions of the reporters are too pessimistic as to the value of medical treatment, and suggests the appointment from the profession of men holding different opinions on the subject so that they will investigate the subject and decide as to what can be expected of surgical and of medical treatment in renal tuberculosis.

Hartmann has performed 89 operations for renal tuberculosis, 24 nephrotomies, 65 nephrectomies. In the 24 nephrotomies, 5 have been improved, 12 have been secondarily nephrectomized, 7 died from 14 days to 3 months after operation owing to continuous evolution of the lesions. The nephrotomies were followed by nephrectomies as soon as the integrity of the other kidney was established. Sixty-five nephrectomies have given no operative deaths. In almost all of the cases cystitis disappeared spontaneously. Although the ureter was not removed, an abscess developed in only one case. This was due probably to sclerosing of the duct. It is needless to remove the ureter, but to avoid inoculation of the wound it is important to extirpate the renal tuberculous pocket without bursting it. He advocates nephrectomy in renal tuberculosis.

J. Dumont.

Hunner: The Treatment of Pyelitis. *Surg., Gynec. & Obst.*, 1912, xv, 444. By Surg., Gynec. & Obst.

The author presents a comprehensive classification of the causes of pyelitis, dividing them into three main groups and subdividing each of these. Class 1 includes the inflammations of the kidney pelvis not associated with infection; Class 2, the infections of the kidney pelvis due to an underlying urinary tract disorder; and Class 3, the infections of the kidney pelvis in which this is the chief or sole lesion of the urinary tract. Attention is called to the activity of the kidneys in both health and disease in excreting bacteria from the system.

Pyelitis probably always requires for its inception some other factor than microbial invasion. The more common of these contributing factors are urinary stasis from any cause, fever, toxæmia, and trauma.

In the last analysis, there are comparatively few cases of pyelitis which we may regard as pure catarrhal inflammations of the kidney pelvis due to an infection, and unassociated with some mechanical, traumatic, toxic, or chemical predisposing factor. It is therefore illogical to undertake the treatment of a pyelitis case without an investigation of its cause.

In reporting 26 cases of pyelitis, the author excludes his cases associated with tuberculosis and pyogenic infections of the kidney substance, as

well as those cases associated with stone in the kidney or ureter. He includes those cases associated with appendicitis and those associated with stricture of the ureter, because they belong to a comparatively new field of research.

He reports cases associated with the following conditions: congenital malformation of the kidney pelvis, interstitial nephritis, exposure to cold with infection, following a gonorrhœal infection, following typhoid fever with typhoid bacteriuria, and post-operative pyelitis. Certain cases are classified as follows: an intestinal group, apparently due to gastro-intestinal disturbances; a cystitis group, in which the pyelitis is associated with cystitis; an appendicitis group; a tonsilitis group, associated with stricture of the ureter; a pyelitis of pregnancy group, and a puerperal group.

It appears from the report of cases that pyelitis is often overlooked or diagnosed as some other disease, particularly as cystitis (the puerperal cases), malaria, and typhoid fever. On the other hand, a more fatal error might occur in too implicit dependence on the urine examination in the cases of pyelitis associated with acute appendicitis.

Occasionally one sees a patient with monolateral or bilateral pyelitis, who seems but little or not at all inconvenienced by the condition; but this is rare, and the rule is that the patient suffers with ill health and discomfort quite out of proportion to what might be predicted from an examination of the urine.

Treatment. The object of treatment is to rid the patient of pain or discomfort and to restore the kidney to the secretion of urine free from pus and bacteria. Many cases of pyelitis clear up under medicinal and hygienic measures. If these fail, resort should be had to the semi-surgical measure of pelvic lavage.

The author has had universal success in the colon bacillus infections by the use of silver nitrate solutions. These were first used in a strength of 1:3000, and followed by a flushing with salt solution or boracic acid solution. Later, solutions of 1:1000 strength were used, and the author suggests that the flushing with a bland solution may be unnecessary.

Pilcher's lavage with argyrol 25 per cent is mentioned, also Koll's treatment with lavage of 2 per cent aluminum acetate.

Vogel: Operation for the Wandering Kidney. *Zentralbl. f. Chir.*, 1912, xxxix, No. 41.

By Surg., Gynec. & Obst.

Vogel has devised a new method of fixation of the kidney. He draws his conclusions from the work of Stiller and of Bier, that floating kidney is not a local affection but rather a part of a so-called constitutional asthenia. This condition includes a number of surgical diseases, based pre-eminently upon weakness and non-resistance of connective tissue. He has observed the healing of wounds and scar formation in this class of patients and finds these processes below par. As a consequence the formation of connective tissue should not be relied upon as a means of kidney fixation. Vogel forms a flap from the capsula propria of the kidney. This is carried around the twelfth rib through a slit and reunited with the remainder of the capsule. The twelfth rib is resected at a distance from the transverse process, to permit a certain amount of play and render the organ less superficial. The band is prepared in such a manner that the upper half of the kidney is covered by the twelfth rib. The subrenal space is obliterated by skinning of the peritoneum. Tamponade is not employed, as it leads to the formation of extensive scar tissue, which subsequently draws the kidney downward instead of supporting it. E. C. Riebel.

Chevassu: Estimating the Ureic Importance of the Kidney by Means of a Study of Azotæmia and the Constant of Ambard (L'appréciation de la valeur uréique du rein par l'étude de l'azotémie et de la constance d'Ambard). 26th Cong. l'Ass. fran. d'Urol., Paris, Oct. 9, 1912.

By Journal de Chirurgie.

Chevassu reports the result of 482 renal explorations which he has made at the Hospital Neckar and the results of an investigation of the "azotæmia of Widal" and "the constant of Ambard" (see *Proceedings*, 1911, pp. 518 ff.).

He shows with what precision this method permits the estimation of the ureic function of the kidney, a function which is so essential that any change in it may lead to uræmia, and which no other method has so far permitted us to estimate with exactness.

Thanks to this method, he has been able to satisfy himself that all surgical affections of the kidney may be accompanied with a profound change of the ureic function; it is therefore extremely useful to know, before undertaking an operation, whether this function is good, medium, or poor, for nephrectomy becomes dangerous in the last instance.

By the study of azotæmia and the constant, one can rather frequently make a diagnosis of unilateral or bilateral involvement independently of any exploration of the kidney; one may even, thanks to his method, be confident and secure in performing certain nephrectomies when the kidney is altogether inexplorable. In affections of the prostate, azotæmia and the constant, by revealing the state of the kidneys, permit one to estimate the possible dangers of prostatectomy.

F. Legueu adds to Chevassu's cases the support of his own experience. He finds the constant an extremely valuable method. It is superior to anything else that we know of at present for estimating the functioning of the kidney and for knowing the resistance of a patient just prior to operation. With respect to patients upon whom nephrectomy is about to be performed, it is perhaps a little exaggerated, in the present state of our knowledge, to base the practice of nephrectomy exclusively upon the evidence of the constant. The concentra-

tion permits us to operate, confident of security; but it too may deceive us and lead us to refuse operation to patients who are capable of undergoing it. J. DUMONT.

Rochet: Experimental Attempts at Partial Grafting of a Kidney Upon Another Kidney (Essais expérimentaux de graffe partielle de rein sur rein). 26th Cong. l'Ass. fran. d'Urol., Paris, Oct. 9, 1912. By Journal de Chirurgie.

Rochet has made a whole series of experiments on grafting one kidney upon another kidney (or rather on grafting fragments of a kidney upon the kidney of another animal of the species).

The grafted fragment had either the shape of a wedge, which was placed between the lips of an incision in the kidney, or the shape of a skull-cap, which replaced an external fragment of the same form previously removed from the kidney. The animals used in these experiments were rabbits. Of course, the most rigorous aseptic precautions were taken. The rabbits which had received the graft were killed in from four to five months.

Rochet reports the anatomical findings as follows: The grafted materials adhered closely, but, as grafts, were not successful; the volume of the graft, which was rather well conserved for several weeks, gradually decreased until finally absorption was complete. In addition, the opposite kidney was clearly injured by the traumatism to the grafted kidney, as well as by the process of resorption which followed the grafting. In every case Rochet found the unoperated kidney to be affected with a slight sclerotic nephritis. J. DUMONT.

Evans, Wynne and Whipple: Reflex Albuminuria, Renal Albuminuria Secondary to Irritation of the Urinary Bladder. *Bull. Johns Hopkins Hosp.*, 1912, xxiii, 311. By Surg., Gynec. & Obst.

The causation of subacute cystitis by means of placing a foreign body in the lumen or the wall of the urinary bladder is followed by an albuminuria of varying degree. It might be thought that this albumin was derived in greater part from the irritated bladder mucosa, but careful study shows that in great part it is derived from the kidneys. This can be shown by collecting urine from the ureter or from the washed bladder during diuresis. This renal albuminuria may occur in perfectly normal kidneys, and may leave no trace of its occurrence in normal organs except for the presence of hyalin casts and the resulting slight dilatation of the uriniferous tubules. Catheterization without bladder irritation will cause no albuminuria.

Chemical irritation of the bladder mucosa may be associated with reflex albuminuria, and in this irritated state any mechanical injury, such as may be produced by catheterization or irrigation, is followed by a prompt and marked albuminuria. It seems pretty clear that this must be a true *nervous reflex*, in which stimuli applied to the bladder mucosa react upon the renal epithelium and modify its secretory activity. It seems highly probable that a similar reflex albuminuria may be found in human cases, and it is obvious that, were this the case, it would have an injurious effect upon kidneys, especially if already more or less diseased and laboring under difficulties. The path of this nervous reflex has not been worked out; and it will be interesting to determine whether irritation of the pelvic viscera adjacent to the bladder may not bring about some such reflex, since the pelvic viscera are supplied in general from the same nerve plexuses.

Corbett: Changes in the Kidney Resulting from Tying the Ureter. *Am. J. M. Sciences*, 1912, cxliv, 568. By Surg., Gynec. & Obst.

Clinicians agree that atresia of the ureter usually produces hydronephrosis in the corresponding kidney, and that this condition may remain or be followed by secondary atrophy.

The picture is much the same whether the condition arise from congenital atresia or from sudden stenosis of the ureter, but the effect upon the patient other than the loss of the functionating kidney is not definitely established. Conclusions of laboratory workers have not always been identical, and the author in this paper has reviewed only the most important works along this line.

This paper discusses: (1) changes resulting from ligation of the ureter in the kidney on the *tied* side; (2) the amount of function remaining after atresia of the ureter lasting for various periods of time; (3) lesions remaining as a permanent legacy after tying the ureter and at a subsequent date removing the ligature; and (4) changes in the unoperated kidney.

Results of atresia of the ureter on the operated kidney closely resemble a nephritis. The kidney, after a 24-hour stenosis, is heavier than the other and presents alternating light and dark areas. The glomeruli are included in a zone of congestion, areas of degeneration of the convoluted tubules are present, and the tubules are filled with granular detritus, with dilatation of the tubules.

After six days' ligation the kidney is very pale and œdematous, is increased in size and weight, and shows marked hydronephrosis and much destruction of the tubules. After twenty-six days' ligation there is extreme hydronephrosis, it being in reality a thick walled cyst.

In order to determine the secreting power of kidneys whose ureters had been ligated for various periods of time, the urine was collected and submitted to analysis. After twenty-four hours' ligation it was found by the nitrogen content that the kidney was capable only of secreting urine in a very irregular manner, but in time was restored to its full function. After six days' ligation, allowing sufficient time for restoration of the circulation, it was found that the kidney was capable of excreting urine containing an amount of nitrogen compatible with nitrogenous equilibrium; while a kidney which had been ligated twenty-four days was at first able

to excrete almost nothing at all. Subsequently it partially regained its function, later almost entirely losing it. The urinalyses in general confirmed the histological findings. The examinations of the unoperated kidneys, in the author's opinion, showed nothing definite or conclusive.

In view of the fact that some authors claim the production of a nephrotoxic substance in ureteral occlusion, the author injected the contents of hydronephrotic kidneys into normal rabbits; and aside from an apparent decrease in the nitrogen output no effect was noticed.

The author concludes that in order to save anywhere near the full functional capacity of the kidney the ureteral obstruction must be removed not later than six days. Beyond twenty-six days the removal of the kidney seems justifiable, as there remains but little functionating parenchyma; and that hydronephrosis is always a potential danger, as it may become infected or cause a mechanical disturbance.

H. A. Potts.

Paul: Cystitis. *Med. Herald*, 1912, xxxi, 512.

By Surg., Gynec. & Obst.

Etiologic predisposing factors are congestion or abrasion of the mucosa, exposure to wet and cold, retention due to large prostate or stricture, stone or foreign bodies, irritants as cantharides, turpentine or excess of alcohol or ammonia in the urine, trauma from rough instrumentation, falls or blows, new growths, tabes, myelitis, and the exanthemata.

Exciting organisms are: bacillus coli, tuberculosis, typhosus and anthracoides, streptococcus, staphylococcus, gonococcus and pneumococcus. Frequently a mixed infection is present. Infection may occur from kidney, urethra, dirty instrumentation, from neighboring focus through lymphatics, rarely through the blood, and from rectum, especially if ulceration is present. Either predisposing or exciting cause may be present separately without causing cystitis.

Pathology varies from catarrhal inflammation with epithelial desquamation and round celled infiltration and œdema of the bladder wall in acute cases, to chronic inflammatory thickening with ulceration, and in the presence of retention, great dilatation and trabeculation. If there is no retention the bladder becomes atrophic through contraction of connective tissue.

The onset is usually acute, becoming chronic, but may be insidious with acute exacerbations. Frequent micturition is due to abnormal irritability of sensory nerves in the trigone. Rubbing of inflamed surfaces from puckering caused by overexertion of the detensor muscle causes tenesmus. Three glass test shows last urine loaded with pus. Blood often present at end of micturition in tuberculous and gonorrhœal form. If intimately mixed with urine points to tumor or ulcer. Fever and rigors occur only with absorption of inflammatory products. Cystoscopic examination reveals stricture stone, diverticular, enlarged middle lobe, polypi, new growths and ulcer. Catheterization of the ureters shows kidney lesions. Centrifugalized urine should be stained for tubercle bacillus and other organisms, with animal inoculation if tuberculosis is suspected.

Prognosis is good if the etiologic factors can be reached and removed. It is very bad in malignancy and tuberculosis.

Treatment. Remove the predisposing factors. Catheterize absolutely aseptically. In acute cases rest in bed, catharsis, frequent hot sitz baths, hot applications over bladder, guard against chill, milk diet, and forced liquids. Soda bicarbonate is given for acid urine, hexamethylenamin if alkaline. Morphin or codein with belladonna by mouth or suppository for tenesmus and frequent micturition. In chronic cases give hexamethylenamin by mouth. Locally irrigations with mild antiseptics as boric acid, potassium permanganate, organic silver salts, or silver nitrate. As a last resort continuous catheterization, perineal drainage or suprapubic cystotomy with currettage are indicated.

Frederick H. Falls.

Chute: Some Observations in Cases of Prostatic Obstruction Preventing Overdistended Bladders. *Boston M. & S. J.*, 1912, clxvii, 607.

By Surg., Gynec. & Obst.

The writer believes that the mortality in operations for the relief of gastric obstructions depends largely on an overdistended condition of the bladder, which, through dilation of the ureter, leads to renal back pressure and crippling of the renal function. Two types of this back renal pressure are to be distinguished: one in which the urine is aseptic, the other in which it is infected. In the aseptic type it is probable that there is an element of nephritis due to pressure; in the infected type there is a pyonephrosis. Besides the nephritis element, there is in both types an element of renal embarrassment or functional disability that depends on the back pressure alone and which can be relieved by removal of this pressure. This may be determined through success or failure of the operation. The danger in the aseptic type is greater than in the infected, since in the first the seriousness of the condition is often overlooked and any attempt to relieve the back pressure may be followed by infection of the kidney.

The ordinary means of estimating renal efficiency are not of great value in these cases, since they cannot on the one hand give any definite idea of the improvement that will take place from the relief of pressure, or on the other hand give an idea of the diminution of function that will follow infection. A more accurate idea of the patient's condition can be drawn from the symptoms of toxæmia that he shows — some referred to the digestive tract, as nausea, vomiting, and dry tongue; others, as twitching, referred to the nervous system. The attempt in these cases should be to relieve the renal back pressure without adding any injury to the kidneys, either from infection or

anæsthesia. This seems best accomplished in the aseptic cases by suprapubic cystotomy done under cocaine. In the infected cases, an inlying catheter will often be all that is necessary. The writer reports cases illustrating certain aspects of the subject.

Kennedy: Uretero-Appendiceal Anastomosis. *Surg., Gynec. & Obst.*, 1912, xv, 464.
By Surg., Gynec. & Obst.

This method of dealing with the right ureter occurred to Kennedy during the course of a radical abdominal operation for carcinoma of the cervix uteri, when it developed that a very extensive part of the right ureter was embedded in the carcinomatous infiltrated tissue. Subsequent work on the cadaver and dogs has demonstrated the feasibility of the technique. In certain cases, where the ureter cannot be safely implanted in the bladder, this disposition of the ureter is preferable to nephrectomy, lumbar drainage, or implantation in the colon. The chance of ascending infection from the appendix is far less than from the colon. The great mobility of the appendix vermiformis and its mesentery favors the operative technique admirably. It may be possible to drain both ureters into the appendix, but the plan seems to be better adapted for the drainage of the right ureter. Or in the case of complete extirpation of the bladder, implantation of the left ureter into the colon, with the right ureter into the appendix, would serve to prolong the function of the right kidney and consequently the life of the patient.

Gerlach's valve is far superior in its valvular action to any results that have thus far been obtained in the effort to reproduce the valve-like action of the vesical orifices of the ureters in the operation of transplanting the ureter into the colon direct. It is probably not possible, by oblique insertion or any other method, to reproduce anything like the effectiveness of the valve of Gerlach, even in its most imperfect state of development.

Casper: The Treatment of Enlarged Prostate. *Therap. d. Gegenwart*, 1912, liii, 385.
By Surg., Gynec. & Obst.

In this article the author urges that the *absolute* indication for prostatectomy be strictly adhered to, claiming that in this way only are the dangers and the rather dubious sequelæ associated with the operation justifiable. He holds that the absolute indications for the operation are: (1) the persistence of painful tenesmus and dysuria, after other forms of treatment have been tried; (2) impossible or painful catheterization; (3) recurrent hæmorrhage from the prostate; (4) recurrent calculi which resists removal; (5) cases where environment makes aseptic catheterization impossible.

The operation is contraindicated in (1) severe general nutritional disturbances such as diabetes; (2) severe pathological conditions of the heart and kidneys; (3) advanced arteriosclerosis; and (4) in marked septic conditions of the urinary tract.

The author strongly advocated the suprapubic method of prostatectomy. E. S. Talbot, Jr.

Chevassu: Suprapubic Prostatectomy and Local Anæsthesia (Prostatectomie suspubienne et anesthésia locale). 26th Cong. l'Ass. fran. d'Urol., Paris, Oct. 9, 1912. By Journal de Chirurgie.

Chevassu performs suprapubic prostatectomy with reduction of general anæsthesia to the minimum; a tube of chlorethyl which gives three minutes of anæsthesia suffices for him. The tube is applied at the moment of enucleation proper, the first steps of the operation having been performed under local anæsthesia. Patients who are operated in this manner do not undergo any kind of shock.

To insure real dependent drainage of the prostatic cavity during the days following the operation, Chevassu employs a special sound, which extends from the urethra to the hypogastric wound and which has two openings so arranged as to lie at about the center of the prostatic cavity. It suffices to attach the head of the penis to this sound to obtain a continuous irrigation which insures perfect drainage.

Loumeau appreciates the method of local anæsthesia for prostatectomy which Chevassu has praised, and is disposed to employ it should there be occasion; in patients who are very ill it seems to be particularly indicated. But he wishes above all to insist upon two points presented in the communication by his colleague. In the first place he wishes to insist that it is very easy to tear the mucous membrane which covers the enlarged prostate even with, or rather within, the neck of the bladder; there the finger-nail will largely suffice and there need be no recourse to instruments which are imagined to be required, but which he considers quite unnecessary. In the second place Loumeau would note that for ten years, after performing prostatectomy, he has been in the habit of inserting a special self-retaining sound in the ureter, and at the same time inserting the hypogastric tube of Freyer. This sound was specially manufactured by Gentile, is made of red caoutchouc, perforated at the end, and with two lateral openings. It permits dependent drainage and very effective lavages of the bladder; it diminishes urinary inundation of patients who have been operated by the suprapubic route; for the future it insures a more perfect caliber of the deep portions of the canal, which is sometimes, though rarely, rather difficult to catheterize after a prostatectomy.
J. Dumont.

Marion: Tamponing in Subpubic Prostatectomy (Du tamponnement dans la prostatectomie suspubienne). 26th Cong. de l'Ass. fran. d'Urol., Paris, Oct. 9, 1912. By Journal de Chirurgie.

Marion reports the results of tamponing which he has practiced in prostatectomies since April, 1910. He recognizes that there are certain disadvantages

in tamponing, such as the desire to urinate which it provokes, the rise in temperature which it occasions from time to time, and the pains at its removal But these disadvantages are of no importance, and are largely compensated for by the advantages which the method affords. One such advantage is the absence of any form of venous hæmorrhage at the moment of intervention, which makes the prostration of the patient infinitely less grave and leaves him in condition for better resistance in event of incontinence. Another advantage is that it is possible to leave the first dressing for three or four days without touching it. There is no risk of blood clots obstructing the tube.

Marion describes the technique of this tamponment, and the results obtained in 81 operations in which he has employed it. Among these he has had to record only five deaths, two of which were due to embolism, two to pyelonephritis, and one to uræmia.

Michon, having learned of the good results which Marion had obtained, has also had recourse to prostatic tamponment. In eight prostatectomies, he has been able to demonstrate that bleeding becomes negligible and that there are no clots. He finds no serious disadvantages in tamponing — at the most a slight rise of temperature; the procedure is therefore a good one. J. Dumont.

Wolf: Superior Advantages of Wilson's Modification of Narath's Operation for Varicocele; Eight Cases. *Deutsche med. Wchnschr.*, 1912, xxxviii, Oct. By Surg., Gynec. & Obst.

Varicocele is not infrequently associated with disturbances preventing the proper discharge of military duties. Wolf finds that these disturbances are often most marked during the period of development of the varicocele, while later the objective findings are quite frequently not in a direct ratio with the disturbances and complaints.

Simple excision of a few veins is not sufficient. An operation should be done so that restoration of the lumen of the removed veins is impossible and that elevation of the testicle should improve the return circulation in the remaining veins. Narath's operation considers these postulates. It is performed as follows: Splitting of skin and aponeurosis of the external oblique muscle. Double ligation and cutting of veins in inguinal canal as high up as possible. Isolation and removal of distal veins. Suture of internal oblique to Poupart's ligament according to Bassoni. The distal stump of veins is sutured to the muscles as high up as possible. Closure of external oblique aponeurosis and skin. Occasionally the venous stump is fastened to the periosteum of the os pubis or its fasoral attachments.

Wilson modified this operation by doing away with a second resection of the peripheral stump, by pulling it through a buttonhole in the internal oblique muscle 2 cm. from its lower margin. The testis is pulled up until it can be palpated on the anterior surface of the symphysis pubis. The veins are tied into a knot and this is fastened by a few sutures. The layers are closed after the method of Penoni if necessary. The operation has the advantage that a simultaneously existing hernial sac may be discovered and ligated (Narath found 5 hernias in 21 cases of varicocele). The somewhat voluminous venous knot is absorbed within three months after the operation. E. C. Riebel.

Gayet: Technique in Plastic Surgery of the Urethra After Urethrectomy (Procédé de restauration de l'urètre après l'urétrectomy). 26th Cong. de l'Ass. franc. d'Urol., Paris, Oct., 1912. By Journal de Chirurgie.

Certain persistent and recurring stenoses are associated with accidents, such as infiltration of urine or urinary abscesses, which leave cicatrices and fistulæ in their wake. Can we bring about the cure of these cases without very extensive resection? The author does not think so.

After these resections, numerous procedures may be employed in the plastic surgery of the canal. Immediate suture with previous deviation of the urine is a beneficial operation when the loss of substance has not been too great. In cases where this loss had been very extensive, Gayet once employed a venous graft and once dermo-epidermic graft, with cystostomy for deviation. In these two cases the graft took well. In two other cases which were still worse Gayet contented himself with fixing the two ends to the skin, like a gun barrel; then, in a second step, he performed a cutaneous autoplasty, after having previously drained behind the fistula. This method probably is the one which gives the most supple and the most capacious canal.

To sum up, we are to-day well armed surgically against grave stenoses; but the indications of each procedure must be checked by a forecast of the probable remote results.

Monie has had very good success in two cases of stricture, which he has treated with incision of the urethra and extirpation of the periurethral indurations without suture of the urethra.

The first was a case of stricture of the perineobulbar urethra. He treated it with external urethrostomy. By two stitches of catgut, the periurethral tissues were loosely united over a sound, which was then withdrawn. Drainage of the urine through the perineum was obtained by means of a self-retaining sound. During the following night the patient tore away his dressings and the sound, and the next day urinated through the incision. The sound was replaced and left for about ten days; after that he urinated through the incision — a veritable vulva — and was treated with dilatation according to Béniqué's method. On the twenty-first day the patient urinated through the penis. After two and a half years, and without any further dilatation, the patient's urethra will admit a sound number B 52.

The second case was a patient who was affected with multiple strictures of the penial urethra, asso-

ciated with periurethral infiltrations and infiltrations of the corpus spongiosum; the urethra admitted a bougie No. 12. Dilatation frequently caused bleeding and fever. The patient had already been operated twice with internal urethrotomy, and the second time ran a temperature for three weeks. The author intervened for the purpose of free discharge of the urethra. The urethra was incised into a veritable fibrous matrix of lardaceous tissue. At several points the diseased urethra had to be resected; the author then united the portions of the urethra which had thus been cut apart by a few stitches of catgut and loosely fastened the periurethral tissue by two stitches of catgut. Flat dressings were secured by two stitches with horsehair inserted into the skin. For ten days the urine was drained through the perineum; after that dilatation could be commenced, but the urine passed through the wound for a long time. The plastic surgery was successful, without fistulæ. Eighteen months later, without dilatation for eight months, the patient's urethra will admit an olive shaped bougie number 22. Erection has been well conserved, and coitus is possible under normal conditions. J. Dumont.

Escat: Urethroperineal Plastic Surgery and Spontaneous Healing Without Suture (De la réparation urétro-périnéale spontanée après les interventions sans suture). 26th Cong. l'Ass. fran. d'Urol., Paris, Oct., 1912. By Journal de Chirurgie.

If plastic surgery of the urethra, by circular urethrorrhaphy after deviation of the urine, is to be applicable the lesions must be limited. This procedure is of real advantage only when the lesions are obstinate and resist the simpler measures.

On the other hand, repair of the ruptured, perforated or constricted urethra can also be obtained by resection of the duct in continuity, without suturing the divided ends, and without leaving a sound in place for more than a few days. Plastic surgery by placing pedunculated flaps may also be accomplished with conservation of the caliber of the urethra.

Certain conditions are indispensable for obtaining these results.

In the traumatic ruptures of the urethra in which a small band of the superior wall has been preserved, an immediate wide incision, the insertion of a sound for a number of days, then plastic dilatation according to the method of Béniqué and lavages with silver nitrate will in most cases suffice to restore the suppleness and the caliber of the urethra within the course of three weeks.

In strictures with periurethritis, the discharge of the urethra must be completely checked and all chronic foci and sclerotic masses must be removed. If necessary, the corpus spongiosum should be resected, the perineum divided as far as the prostate, and the transverse muscles of the perineum cut if there are deep ischiorectal foci. Internal urethrotomy should be supplemented by external section of all constriction rings. Self-retaining sound is to be left at the most from eight to ten days, the time which is required for the wound to heal. The loss of skin is replaced by plastic work and, after the stitches have been placed, by passive movement at the top and at the base of the scrotum. Then pedunculated flaps are placed, and followed by dilatation according to the method of Béniqué and lavages with silver nitrate.

If this method should leave a fistula or an incurable ring, it nevertheless remains the best preparation for a resection or a delayed autoplasty, to be employed in case the two ends are separated as a result of traumatism or necrosis. The treatment in two stages constitutes the most rational procedure. J. Dumont.

Legueu and Berne-Lagarde: Criticism of Experimental Polyuria (Critique de la polyurie expérimentale). *J. d'Urol.*, 1912, ii, 461. By Journal de Chirurgie.

Among the various methods of investigating the function of the kidney, the test of experimental polyuria which has been demonstrated by Albarran has become classical. It is based upon two laws of general pathology established by Guyon and Albarran, which are the following:

1. The diseased kidney has a more constant function than the healthy kidney, and its function varies less from moment to moment the more its parenchyma is destroyed.

2. When of two kidneys only one is diseased, or more diseased than the other, it modifies its function less than the other when the urinary function begins to be disturbed; the difference between the two glands becomes exaggerated chiefly through the variations in the functioning of the healthy kidney.

3. In practice, the absorption of a certain quantity of water will render manifest the functional difference which exists between the diseased and the healthy kidney, a difference which without this test would probably not be noticeable. Aqueous polyuria begins immediately after the ingestation of the water, reaches its maximum in the second half-hour after the ingestion and diminishes in the third. The quantity of urine given off by the diseased kidney is less than that given off by the healthy kidney; when both kidneys are diseased, aqueous polyuria is more marked in the kidney which is less affected.

Moreover, the kidney which is less affected gives off a *total yield of urea* which is greater than that which is yielded by its congener. The elimination of urea is satisfactory when it reaches, in the adult and for a single kidney, from 1 gm. in 20 to 1 gm. in 80 during the two hours which the experiment lasts; it is medium if it is reduced to 0 gm. in 75 or 1 gm. in 85, and poor if below this figure.

The objection has been made to experimental polyuria that there is a possibility of there being at times a considerable polyuria due to catheterization (Clairmont, Kapraumer), and the further possibility of filtration of urine between the walls of the ureter

and the catheter (Kunetzky), so that many have abandoned it.

To prove its real value Legueu and Berne-Lagarde have made a whole series of tests upon 13 different patients who had previously undergone unilateral nephrectomy, thereby avoiding the excitative effect of the ureteral sound and its obstructive and arresting influence.

The results comprise 4 marked polyurias and 9 in which polyuria was not marked. Out of these latter, two had never been marked, under any tests; four were variable, sometimes good, sometimes bad in the same subjects, though no cause could be found for this variation.

The authors conclude from these facts that the elimination provoked is in great measure independent of the renal filter and that we must consider the important rôle played by the digestive tract, the liver, and the nervous system. Gastric dilatation and atony, portal hypertension, defective circulation due to weakness of the heart, momentary disturbance of the nervous system, are extrarenal factors which modify a test for polyuria even in kidneys which by themselves would function normally.

The following practical conclusion develops from this. When, in a patient who is about to be subjected to nephrectomy, a favorable polyuria is provoked from the healthy kidney, we may assume almost with certainty functional integrity of this kidney and undertake the operation. But when the test is not favorable, we are not justified in depending exclusively upon the evidence of the insufficiency of polyuria for accepting insufficiency of this kidney, and so rejecting nephrectomy.

J. Tanton.

Stanton: The Diagnosis of Diseases of the Urinary Tract by the Combined Use of the Cystoscope and the X-Ray. *J. Urol.*, 1912, viii, 511. By Surg., Gynec. & Obst.

Stanton believes that the data obtained by the cystoscope, the ureteral catheter, and the X-ray is so positive in character that the question of a diagnosis by these methods is in many respects not unlike a problem in mathematics or quantitative chemistry, where if each step in the work is accurate and in proper sequence the results are certain to be correct, but if any error be made the results are almost certain to be wrong.

It is only when the X-ray, the cystoscope, and the ureteral catheter are used in combination that an accurate diagnosis becomes possible in practically all cases; and the problem of diagnosis thus becomes largely one of combining the several diagnostic procedures in such a manner that the shortcomings of one will be supplemented by the positive findings of the other.

In order to obtain the best results the cystoscopist and radiographer must work together, and their combined technique should be so planned as to meet the following requirements.

1. The examination must be practically painless and must not be unduly prolonged.

2. The completed examination must give an orderly collection of accurate data which together will constitute all of the facts necessary for an accurate diagnosis.

3. The various steps of the examination must be so planned that one step does not interfere with another, else repeated examinations will be necessary; and private patients will not willingly submit to repeated examinations.

4. Any plan adopted must be capable of modification to suit individual cases without breaking the technique as a whole.

The problem which the writer has attempted to solve has been that of selecting the most useful procedures and combining them in such a way as to meet the above requirements. Especial emphasis is placed on the value of pyelography as a check to the data obtained from the ordinary X-ray plate and by the ureteral catheter. With proper team work the majority of the examinations, including the X-ray work, can be completed within thirty minutes, with no more inconvenience to the patient than is commonly caused by the passing of a sound.

Marion: Is There a Vesical Prostatism — Prostatitis Without Prostate? (Existe-t-il un prostatisme vésical, des prostatiques sans prostates?). *J. d'Urol.*, 1912, ii, 497. By Journal de Chirurgie.

It has long since been admitted that, besides the complete or incomplete retentions manifestly provoked by an increase in the volume of the prostate, there exist similar retentions not caused by any obstacle and provoked by vesical insufficiency; this is the so-called *vesical prostatism* of Guyon.

At the Congress of Urology, in 1907, Desnos found that out of 296 cases of prostatitis, 220 patients had tumerous prostates, while in 76 cases it was impossible to notice any increase in the volume of the prostate through the rectum; and yet these 76 patients all presented retention, while among the 220 one half had no retention.

Now, Moty and Arrese have shown, histologically, that the number of muscular fibers is by no means decreased in the veins of prostatitic patients without a prostate, and that the vesical atony of these patients is not occasioned by the poor state of the muscular tissues.

Marion likewise casts doubt upon the real existence of any prostatitis without prostate. In all the cases which he has observed, he has always been able to demonstrate that when the trouble began there always was something besides primary insufficiency of the musculature of the bladder, and very often he has been able to restore micturition by the appropriate intervention.

Under this category of prostatitic patients without prostate must be classed patients affected with a variety of affections:

First, patients with *urinary defects*, that is those who have suffered a lesion of the nervous system,

which so far has not become manifest except through disturbances in micturition: tabes, particularly if it begins in the bladder.

Into this group belong also the cases of vesical paralysis of reflex origin, which are provoked by renal suppurations.

To the First International Congress of Urology, Marion communicated a case of complicated grippe pyelonephritis, in a woman who had presented complete retention of urine but in whom the retention passed away gradually as soon as the pyelonephritis became better.

Second, *prostatitic patients with a prostate*, but in whom the hypertrophy is slight and quite essentially vesical and escapes ordinary examination. Some adenomata of a few grammes in weight may also cause complete retention, and micturition is re-established when they have been removed.

These hypertrophies cannot be diagnosed except by cystoscopy. This enables us to find either one of two conditions: either there is a clear malformation of the neck posteriorly, depending upon the existence of a median lobe; or it may be shown that the neck and the urethral orifices can be seen at the same time, a condition which is produced by elevation of the neck and is caused by an intraprostatic adenoma.

A median lobe, sufficiently movable to close over the orifice of the vesical neck, mechanically brings about an early and complete retention. On the other hand, in the cases of intrasphinctral adenomata, which are too small to obstruct the urethra or the vesical neck, we probably have to deal with phenomena of vesical inhibition which are provoked by lesions of the neck or of the posterior urethra.

Third, patients who are affected with *vesical or urethral lesions*. The author presents, in particular, the case of a patient who showed symptoms of vesical prostatism. When the piece, which had been removed by ablation of the vesical neck and the posterior urethra, was examined it was found that a papilloma in a state of degeneration adhered to the posterior urethra. Contractility of the bladder became normal again after the intervention.

In brief, the diagnosis of vesical prostatism must not be made except after very minute examination of the patient; in the cases in which the examination has failed to reveal any lesion it must not even then be made until after failure of an intervention.

When we have a prostatitic patient without prostate, intervention in the form of suprapubic cystostomy is always indicated, for it is calculated to re-establish micturition. It also enables us to treat the lesions which have escaped detection in the explorations. In the cases where nothing further is found it enables one to suppress the vesical neck, this operation being advisable where nothing else will explain the symptoms of prostatism.

J. Tanton

SURGERY OF THE EYE AND EAR

Cohn: Technique of Operation for Diseases of the Lachrymal Ducts (Zur Operationstechnik bei Erkrankungen der Traenenwege). *Arch. f. Laryngol. u. Rhinol.*, 1912, xxvi, 523.

By Surg., Gynec. & Obst.

An endonasal method for the removal of obstructions in the nasolachrymal duct, founded upon experiments on cadavers, is proposed by the author. The plan is the following: With a circular incision parallel to the anterior border of the median concha, 1 cm. in front of it and ending at the end of the first third of the inferior concha, the mucosa is cut and pushed back together with the periosteum. A special instrument with a blunt end, curved 4 mm. to the side, is then pushed backwards along the hard bone of the frontal process until it breaks through the thin lachrymal bone, the curved end of the instrument being too short to injure the opposite wall, which looks toward the maxillary sinus. Then a similar instrument, with a curved end of 7 mm. length and a sharp edge, is introduced through the lachrymal bone and the cutaneous canal cut. Into the thus opened canal a special constructed forceps (Stanze) is introduced to remove the obstructing parts, cutting only the processus frontalis and parts of the cutaneous canal contained in it.

Coover: A Résumé of Present Operative Treatment, for Trachoma, with Description of the Author's Method of Grattage with Strips of Sterilized Sand Paper. *Ophthal.*, 1912, ix, 28.

By Surg., Gynec. & Obst.

Coover gives a review of the present operative treatment of trachoma, and recommends his method of grattage with sterilized sand paper. He uses No. 0 or No. 00 sand paper, sterilized by dipping it in alcohol and then burning it off. The lid is everted with Darrier forceps. A horn spatula is used to protect the cornea, the sand paper is rolled over the index finger, and the entire lid surface is thoroughly rubbed, a general anæsthetic being used.

Dr. D. W. White and Dr. George Phillips reported 200 cases in the United States Indian service treated by this method with good results.

C. G. Darling.

Wood: The Surgical Treatment of Trachoma. *Chicago Med. Record.*, 1912, xxxiv, 507.

By Surg., Gynec. & Obst.

In this article the author discusses (1) the surgical measures used in the routine treatment of trachoma, (2) the surgical removal of the diseased tissues, and (3) the operative procedures in the treatment of pannus. Under the first group he takes up cauterization of the diseased follicles as a whole or individually, noting their value but warning against the danger of too deep scarring if thoroughly done. Electrolysis, either after scarification, with a zinc electrode, or by plunging the electrode into the individual granules, is mentioned and discussed.

X-ray cures rapidly with the least deformity of the lid, is painless, and the pannus clears up very rapidly. Similarly, radium is of value.

The ordinary surgical procedures do not insure against relapse, because the seat of predilection for the trachoma follicles is in the upper fornix, hence the difficulty to reach by surgical attack. To meet this the removal of the trachomatous tissue has been advocated and practiced with good results.

The author believes this procedure to be contraindicated: (1) in recent or acute forms of trachoma; (2) in cases where there is reasonable prospect of early cure from any other form of treatment; (3) in the most advanced stage of the disease in those cicatricial forms that have gone on to shrinking of the sac, and in which there are probably few or no active trachomatous nodules; (4) in cases in which it is possible to remove, one by one, the discrete and scattered trachoma nodules from the tarsus itself.

The operation is indicated: (1) in long standing cases of trachoma not amenable to other forms of treatment, in which the lids show trachomatous infiltration, with granulation deposits in the connective tissue of the retrotarsal folds, whether the cornea is affected or not; (2) especially if there is thickening and enlargement of the tarsus itself; (3) in evident disease of the folds without apparent thickening of the cartilage, but the cornea is implicated; (4) in cases in which there has been a cure of previously existing granulations in the tarsal folds, but there remain deep-seated foci in the tarsus and submucous connective tissue. It is desirable that the eye be as quiet as possible, but not essential.

He then discusses the muscular supply of the lids, and describes the operation, which consists in (1) incision at the bulbar margin of the diseased tissue in the retrotarsal fold, transverse through the mucosa, with three stitches of three days gut passed through the bulbar margin; (2) second incision the length of and parallel to the lid edge as nearly as possible in the healthy conjunctiva; (3) excision of the conjunctiva and the tarsus down to the muscle; (4) careful approximation of the two margins. He then discusses and meets the objections to this operation.

Lastly, he discusses the removal of a strip of conjunctiva and submucosa surrounding the cornea as a cure for pannus; the cautery of the corneal vessels at the limbus after curettage of the surrounding episcleral tissue; and the formation of a subcon-

junctival blood clot around the cornea by the puncture of a vessel through a very small incision. All these methods have been used with good results.

E. B. Fowler.

Weidler: Keratitis Neuroparalytica After Removal of the Gasserian Ganglion. *N. Y. St. J. Med.*, 1912, xii, 558. By Surg., Gynec. & Obst.

Weidler reports two cases of neuroparalytic keratitis following removal of the Gasserian ganglion, one case in which the eye was enucleated.

He says that it is the consensus of opinion of Cushing, Dearer, Horsley, Keen, and Frazier, that the removal of the Gasserian ganglion is extremely dangerous, with a mortality rate from 5 to 50 per cent, destructive neuroparalytic keratitis following many of the cases.

Over 300 cases of alcohol injections are collected in this paper, with only one serious keratitis; whereas in the 70 cases of gasserectomy, keratitis followed in a considerable number, and in four cases enucleation was done. He advises that "alcohol injection" treatment should be advised in all cases of douloureux, not only as the first form but in nearly all, as the only treatment.

C. G. Darling.

Tinker: The Surgical Treatment of Exophthalmos. *J. Am. M. Ass.*, 1912, lix, 989. By Surg., Gynec. & Obst.

While various procedures are mentioned in the treatment of exophthalmos from differing causes, this paper chiefly concerns osteoplastic resection of the outer wall of the orbit. In the treatment of obstinate and extreme protrusion in exophthalmic goitre, and also for orbital tumors, this operation has perhaps not been as commonly practiced as it deserves to be. The operation may be indicated for the relief of very disfiguring deformity, extreme pain, or because of injury to the eye from exposure and ulceration of the cornea. The original Krönlein incision leaves a larger visible scar than is necessary, and is likely to shatter the fragile bones of the wall of the orbit and injure certain filaments of the facial nerve, making facial paralysis a frequent result.

An incision is proposed based on study of the anatomy of this region which avoids these disadvantages. Cuts are given showing distribution of the facial nerve, and a triangle of safety for the facial nerve, in which the incision may be placed. Twenty-five dissections plotted on the outline record chart of the Anatomic Laboratory of Cornell University Medical College, at Ithaca, were studied and verified in plotting this triangle. The use of a drill and a Gigli saw are suggested to avoid shattering the bone in making the osteoplastic flap. There seems no apparent reason why the operation should endanger life or the function of the eye if properly performed. Removal of serious danger to vision, relief of severe pain in certain cases, and correction of a very disfiguring deformity, makes the osteoplastic resection of the outer wall of the orbit a most satisfactory operation to patient and surgeon in appropriate cases. A very satisfactory result is reported fourteen months after operation on a patient who had had a previous thyroidectomy for exophthalmic goiter, but whose exophthalmos persisted as a result of a hæmangioma situated on the posterior surface of the eyeball and along the optic nerve.

Ruttin: The Pathology of Labyrinthitis. *Ann. Otol., Rhinol. & Laryngol.*, 1912, xxi, 714. By Surg., Gynec. & Obst.

The author takes up the indications for operative treatment in diseases of the labyrinth in seeking for the underlying principles.

He is guided by the fundamentals: never to destroy a still functionating labyrinth, and on the other hand to drain any location where there is pus.

He classifies the condition according to the clinical picture into (1) circumscribed labyrinthitis, (2) diffuse serous secondary labyrinthitis, (3) diffuse serous induced labyrinthitis, (4) diffuse suppurative manifest labyrinthitis and (5) diffuse suppurative latent labyrinthitis.

In the suppurative forms function is destroyed.

He gives the indications for opening the diseased labyrinth as follows: Every suppurative labyrinthitis (diagnosed on a complete loss of function) should be operated both in the manifest and in the latent forms. The radical mastoid operation is done in the first three types, the circumscribed and the two serous forms, because the labyrinth is not entirely destroyed and its function is partially retained. The partial impairment of function need not be lasting, and the serous types often heal very readily when the focus of infection is removed. Brain complications rarely occur without the disease going through the suppurative stage, at which time the indications for drainage of the labyrinth will still be timely.

C. V. Fowler.

Wood: The After Treatment of Mastoid Operations. *Ann. Otol., Rhinol. & Laryngol.*, 1912, xxi, 627. By Surg., Gynec. & Obst.

The author gives a detailed account of the recognized methods of treatment, both operative and after treatment, at such length that only the briefest outline of the article can be given here.

He says that any mastoid operation is but the commencement of a course of treatment, the aim of which is the arrest of discharge with the preservation of life and hearing. In all stages the greatest care should be exercised to obtain aseptic conditions.

He then gives in detail with after treatment: Wilde's incision; cortical mastoid (of Schwartz); the "Heath conservative mastoid operation," in which the stitches are removed the following day, although the tube is retained until the discharge has ceased. The ear is inflated daily by Valsalva's method, to clear out the discharge and to prevent adhesions. The result of this technique is that there is average healing in six weeks.

The author then discusses the after effects of this form of treatment, especially tinnitis and adhe-

sions in tympanum and their prevention, and also permanent perforation and continuance of the discharge. C. V. Fowler.

Lewis: Cellular Changes During and After Acute Mastoiditis with a Consideration of the Inadvisability of Certain Operative Procedures. *J. Am. M. Ass.*, lix, 1142. By Surg., Gynec. & Obst.

This paper deals only with general principles underlying the surgery of acute purulent mastoiditis. Lewis' propositions are the following: In operative treatment of acute purulent inflammation of tympanomastoid structures, any procedure having for its object aught else than relief of pressure and adequate drainage is a surgical error; the mucoperiosteum is a very important lymphatic organ of great absorptive and recuperative powers, and should be accorded the utmost conservative surgical handling; the antrum should be opened when indicated, but its mucoperiosteum should not be destroyed by curetting or other destructive procedure; free drainage of tympanum, aditus, and antrum by means of a large incision in the drumhead, kept open by re-incision as often as necessary, should be regarded as a surgical indication of first rank.

Anatomically three types of mastoid process are encountered; nondiploetic, 40 per cent; mixed pneumatic and diploetic, 38 per cent; and wholly diploetic, 22 per cent. In all mastoids, irrespective of type, diploe is absent from at least three sites — the promontorium, the inner antral wall, and the internal auditory meatus. All non-diploetic bone in the mastoid is solely dependent upon the mucoperiosteum for nourishment and for serum and cytic protectives.

The details of pathologic changes during acute purulent mastoiditis are considered with the foregoing in view, tracing development of empyema antri, mastoid abscess proper and acute osteomyelitis; also such developments as Bezold's perforating abscess, epimastoid, epidural and perisinous abscess. Attention is specially called to the common fallacy of mistaking intensely inflamed but viable mucoperiosteum for "granular detritus," and its consequent destruction by the curette. The most important protection to the individual during acute purulent mastoiditis comes from rupture of the membrana tympani and the formation of organized exudate surrounding the infected areas. Large incision of the drumhead should be made early, and continuation of this drainage maintained all through the disease. Empyema antri needs no further surgical treatment. Early free opening of the mastoid process and establishing thorough drainage is indicated additionally in cases of abscess and acute osteomyelitis. Complete exenteration, as very widely advocated and practiced today, is not only unnecessary, but by destroying Nature's safeguards, the organized circuminflammatory exudates increases liability to internal ear and intracranial complications, and renders healing as protracted and difficult as possible. And after complete healing the much enlarged antrum is lined with a cicatricial basement membrane covered with flat epithelium, in place of the mucoperiosteum, and remains a step-off cavity peculiarly defenseless in the presence of subsequent infection. Lewis believes that the percentage of intracranial and internal ear complications is higher in and about the centers where mastoid exenteration is practiced upon acute purulent mastoiditis solely because of the violation of fundamental surgical principles.

Ballance: Epithelial Grafting as a Means of Effecting the Sure and Rapid Healing of the Cavity Left by the Complete Mastoid Operation. *Ann. Otol., Rhinol. & Laryngol.*, 1912, xxi, 598. By Surg., Gynec. & Obst.

Two conditions are necessary for the success of the operation for cure of chronic otorrhœa: First, all disease must be removed; second, the large bone wound must be made to heal from the bottom. The first condition can be carried out with certainty in the large majority of cases. The second condition, however, is often more difficult to effect; and it is often only after many weeks or even months that the large cavity will finally be healed, and in a certain number of cases a permanent discharging sinus is left. The reason for this slow healing is that the denuded bone which forms the base of the cavity left after a complete mastoid operation is very slow in forming granulation tissue. Furthermore, the operation wound is not flat, and if exuberant granulations are allowed to grow they may shut off deep pockets, which favors the formation of a persistent discharging sinus.

The advantages gained by grafting the mastoid cavity are: (1) rapid healing of the entire bone, cartilage and soft parts on ordinary surgical principles; (2) immediate protection of the raw bone, and the lessening of the pain from subsequent dressing and of the liability of reinfection of the bone. Furthermore, there is a considerable shortening of the time that skilled attention is necessary, and also an improvement in the hearing over the old result when grafting is not used.

The technique of the grafting is very similar to its application elsewhere. The complete mastoid operation is done, and the grafting done immediately or at a later date. The grafts are obtained from the thigh in very thin strips. They are carried by a section lifter and carefully applied to: (1) the anterior wall of the cavity formed by the anterior boundary of the tympanum and attic; (2) the anterior part of the roof of the cavity formed by the tegmen tympani and the superior wall of the enlarged osseous meatus; (3) the interior walls of the attic and tympanum; (4) the tegmen antri; (5) the tuberosity formed by the horizontal semicircular canal and the Fallopian canal, and (6) the inner wall of the antrum. James H. Skiles.

SURGERY OF NOSE, THROAT, AND MOUTH

Hirsch: The Operative Treatment of Tumors of the Hypophysis with Endonasal Methods (Die operative Behandlung von Hypophysentumoren nach endonasalen Methoden). *Arch. f. Laryngol. u. Rhinol.*, 1912, xxvi, 531. By Surg., Gynec. & Obst.

The author gives the detailed histories of 26 cases of tumors of the hypophysis in which he performed endonasal operations. This is done either by the ethmoidal method, which is performed in from three to four sittings, or by the septal method. In the first sitting the median concha of one side is removed. After some days the posterior and also part of the anterior ethmoidal cells on the same side are removed, baring the anterior wall of the sphenoidal sinus, which is resected some days later; and in the fourth sitting the sella is opened. By the septal method, access to the sphenoidal sinuses and to the tumor is gained by submucous resection of the septum; both sphenoidal sinuses are opened from the median line. This operation is preferable, as it may be done in one sitting in case the fissura olfactoria is wide, and as there is less danger of infection because the removal of the mucosa on both sides of the septum creates a median cavity separate from the nasal cavity.

Of the 26 operations, three ended fatally, or 11.5 per cent, which is rather favorable in comparison to the results of Schlösser's method, with 37.8 per cent mortality (45 operations), and of von Eiselsberg's method, with 28.5 per cent (14 operations). Of 32 operations with Kanavel's method and that of Halsted and Cushing, 6 ended fatally, or 13.7 per cent. Of the author's three fatal cases, one died 20 days after operation from meningitis; the patient was much demented and had pulled out the tampon himself. The second died 8 days after operation from pneumonia; the third death occurred directly as a result of the operation from hæmorrhage into the tumor. Three operations had no effect (degeneratio adiposogenitalis, with marked disturbance of vision; acromegaly; and the third with disturbed vision of 12 years' standing). Here the tumors had grown not only toward the sella, but also toward the base of the skull. The optic nerves could not recover as a result of the long standing condition.

In five cases the improvement was only temporary (2 to 6 months); in two of them the tumor was not removed, and in one there was an intracranial chondroma. The remaining 14 cases were markedly improved, though in some the vision had been much impaired, and in others either the intelligence and memory were disturbed or there were other psychic anomalies. The later cases became mentally normal after the operation. One of the patients recovered her regular menses after the operation.

From the operative standpoint we must differentiate three groups of tumors: (1) Chiefly intracranial solid tumors with high grade disturbance of vision and marked involvement of the sella (13 of author's cases). The removal of the bottom of the sella and part of the tumor is sufficient in the majority of the cases to effect a marked improvement of the local pressure symptoms, and often also of some of the general symptoms. (2) Intrasellar solid tumors. These cause no disturbance of vision; in the radiogram they show an enlarged sella with no widening of its entrance and offer very favorable chances, as they can be reached in their entire extent (2 cases of author). These intrasellar tumors can only be diagnosed when they cause general symptoms, above all, acromegaly; otherwise only an X-ray may lead to their discovery. (3) Cystic tumors. Diagnosis can only be made by operation. They offer very favorable chances, as the opening and partial removal of the wall of the cyst is sufficient to relieve the pressure symptoms; the size of the tumor plays no part in the recovery.

Operation is indicated in every case with disturbed vision, no matter whether we deal with an intracranial or intrasellar tumor. Acromegalic deformity without visual disturbance is in itself not sufficient indication for an operation, though the acromegalic symptoms partly disappeared after operation, and it must be considered that on account of their intrasellar location they offer favorable chances.

Freer: The Submucous Resection of the Nasal Septum. *J. Am. M. Ass.*, 1912, lix, 1127. By Surg., Gynec. & Obst.

This article is the last of eleven written by Freer on this subject since 1902. Each of these papers has marked an advance in the perfection of the method, which has progressed from crude beginnings to a procedure which permits the removal of the most difficult deflections with mathematical certainty, with no injury to the patient, the least traumatism, and with little or no pain under local anæsthesia.

The description of the operation is preceded by an explanation of anatomy of deflections as Freer has found it. The important crossing of the periosteum and perichondrium in the vomerocartilaginous articulation, first described by Freer (*Jour. of Ophth. and Oto-laryng.*, 1907), is clearly set forth, with the reasons why it makes the dull denudation of the deflection advocated in most text-books an impossibility.

Except in younger children, local anæsthesia, produced by massaging the mucosa with a mud of

cocaine flake crystals and adrenalin, is used. The operation is performed with the patient lying on an operating chair. A mucous flap, turned forward, is made to give a wide entrance to the operative field and to protect what Freer calls the dorsal or supporting strip of cartilage left under the nasal bridge. Freer refers to the sunken nasal bridges which have followed the prevalent method of performing the submucous resection through an anterior incision with excision of a piece of cartilage with the swivel knife, an implement which is not only used without the aid of sight but is incapable of accurate guidance, so that it is liable to cut close to the under surface of the nasal bridge. The anterior incision leaves the cut cartilage unprotected in the wound, so that it is liable to soften and become absorbed. In distinction from this, the Freer flap permits the accurate making of the dorsal incision with the aid of sight, and at the exact distance from the nasal bridge desired by the operator. In addition, the flap thoroughly blankets the dorsal strip, so protecting it from absorption.

Freer objects to the denial of the submucous resection to children so frequently made, a denial which deprives them of the benefit of free nasal breathing during their growth. Freer has never seen anything but the best results from his operations upon one hundred children, and attributes the difficulty experienced by others to the employment of the popular Killian-Ballenger method, which is unable to cope with anything but simple cases.

The resection of the bony deflection is carefully described, and must be read in the original. Nineteen excellent illustrations accompany the article.

W. G. Reeder.

Borchers: Enucleation of the Tonsils with the Finger. *München. med. Wchnschr.*, 1912, lix, Oct.
By Surg., Gynec. & Obst.

Borchers uses ethyl chloride as anæsthetic, with the drop method. He operates during the analgetic stage, which is reached within two minutes. The reflexes should be present to avoid aspiration of the blood. The head is slightly elevated and somewhat to the side. The anterior pillar is detached by a curved elevator. If adhesions are present, curved scissors and forceps are necessary. After detachment of the anterior pillar, the enucleation of the tonsil from its bed is performed by the index finger. This is done by stripping in an upward and downward direction. A few seconds, as a rule, suffice to finish the procedure, so that the tonsil is held by a thin pedicle passing in the direction of the base of the tongue. This pedicle may be torn off in children; in adults detachment by scissors is advisable. The operation can be done by touch alone; eye control is not necessary. The patient is allowed to come to and rinse his mouth before the second tonsil is removed.

The author cites as advantages of this method, its simplicity, short duration, the slight hæmorrhage, and impossibility of injury of either anterior pillar or carotid artery if abnormal in its course. Very small tonsils, especially very soft ones and those which are closely adherent, should not be removed in this manner.

E. C. Riebel.

Levinstein: A New Pathologic Tonsil of the Human Pharynx (Ueber eine neue "pathologische Tonsille" des menschlichen Schlundes, die "Tonsilla linguæ lateralis" und ihre Erkrankung an Angina). *Arch. f. Laryngol. u. Rhinol.*, 1912, xxvi, 687.
By Surg., Gynec. & Obst.

Levinstein describes a case of angina of a pathologic tonsil on the tongue of a 29-year-old male laborer. He denominates this disease, which he says is unique in medical literature, as "angina habitualis tonsillæ linguæ lateralis" in differentiation from the angina of the ordinary lingual tonsil, which should be called "angina tonsillæ linguæ medialis" or "angina tonsillæ radicis linguæ." The case is of clinical interest because it represents an acute inflammation of a tonsil which does not exist in the normal and which was probably produced by acute or chronic irritation of the mucosa, which caused the angioma of the new tonsil. Anatomically it is of interest because it proves that pathologic irritation of the mucosa in the human pharynx may produce new organs which can neither macroscopically nor microscopically be differentiated in their structures from the normal tonsils. The exact location of the described new formation is bilaterally at the posterior border of the tongue in front and laterally of the plica triangularis and the anterior palatine arch.

Albrecht: Hot Air Treatment in Laryngology. (Heissluftbehandlung in der Laryngologie). *Arch. f. Laryngol. u. Rhinol.*, 1912, xxvi, 509.
By Surg., Gynec. & Obst.

For producing active arterial hyperæmia for the treatment of diseases of the larynx with hot air, the author had a box of asbestos wood constructed with such excisions as to fit over the upper part of the chest, the neck, the chin, and shoulders as the parts to be exposed to heat. To make this cover more tightly fitting, asbestos is stuffed into the gaps, and thus a closed room is created over the parts to be treated. The cover or box has a ventilation hole on top, and into the side a sheet iron tube is inserted which has a funnel bending down at its end. A gas jet is fixed to a holder in such way that it can be lowered or raised to regulate the heat. It should never be placed under the funnel before being lighted, else gas will escape into the funnel and the box when the jet is opened, and seriously burn the patient when it is lit. The patient is in a lying position; the exposure is one-half to three-quarters of an hour, to an intensity of heat of 100° to 110° C. This heat produces mostly an agreeable sensation in the throat, and the treatment can be repeated daily without injury to the skin of the patient.

Good results are promised: (1) in acute laryngitis; (2) in subacute and chronic laryngitis, especially laryngitis sicca, if the disease is not of too long standing and the symptoms not too advanced and

severe; (3) in acute and chronic œdemata of the larynx, especially of the tuberculous type (here the good results are due to the resorbing character of the hyperæmia); (4) stenosed scars of the larynx may be favorably influenced by the treatment, and, though author had one good result, he does not yet recommend it as reliable.

In the report of the author's own cases treated with this method, three were of very severe acute laryngitis, one of which was markedly improved by the treatment but did not continue; the two others continued until cured. Of ten cases of laryngitis sicca, the treatment had to be stopped in three cases of long standing and complicated with pharyngitis sicca and ozæna. In two cases there was a marked improvement, and in five the cure effected by the treatment was perfect. In six cases of chronic and two cases of acute œdema. the result was quite remarkably favorable. The histories are given in detail and illustrated, as well as the treatment.

Lautenschlaeger: Double Vocal Cords (Ein Fall von Doppelbildung der Stimmbänder). *Arch. f. Laryngol. u. Rhinol.*, 1912, xxvi, 706. By Surg., Gynec. & Obst.

A twenty-year-old patient came to clinic for a submucous operation of the septum, and when examined it was found that he had double vocal cords bilaterally. During phonation the vocal cords could be seen, slightly reddened, somewhat thickened, closing well, and easily movable. During aspiration, however, below the level of the normal cords a second cord could be seen on either side. They were snowy white, shining like tendons, extending from the anterior commissure to the vocal process; they were about one third thicker than the upper cords, lying about 1 mm. deeper than these and separated from them by a groove. When the upper layer was in motion, the two lower cords participated in the movements, but they could not be seen during phonation because they were hidden below the upper contracted cords. The closure of the glottis seemed good, but the voice was somewhat hoarse, probably because the upper cords had less tendon layers than the snow-white lower ones and were softer. The findings were the same on both sides. The double formation seemed to be congenital. The patient had never been seriously ill, and only hoarse from infancy on. Croupous ulcers, tuberculosis and lues are excluded in this case as cause of the twin formation. The author proposes to fill the gap between the cords with paraffin and thus to form one thicker cord on either side.

Campbell: The Treatment of Cleft Palate. *Am. Medicine*, 1912, xviii, 545. By Surg., Gynec. & Obst.

Campbell urges that there should be some definite standard of treatment upon which the profession is agreed, and deprecates the old traditional dictum of operating on harelip at the third month and cleft palate at the third year as physiologically irrational and surgically unnecessary.

The old dictum of delay has nothing to commend it. It is fallacious in premise and conclusion, for it is obvious that cleft palate is a serious menace to the nutrition of the infant, since it is impossible for the child to suckle or satisfactorily swallow the food introduced into the mouth. Later, articulation and phonation are seriously compromised; the defective nasopharyngeal wall permits the air current to escape through the nose and makes the distinct articulation of consonants impossible. The tools of speech must be normal in order to have correct speech. Not only this, but unless the mouth and nasal cavities are separated early in life, normal physiological function is impossible, hence normal development is seriously compromised. Vital capacity is impaired, the physiognomy is altered, and the individual is physically and intellectually a defective. It is certain that if the normal development of the nasopharynx and the surrounding structures depends upon its normal physiology, the nose and mouth cavities should be separated as early as possible. The child cannot develop so long as its supply of air and food is deficient. The proper time to operate for cleft palate is as soon after birth as possible; nothing is gained by delay except the consequences of faulty nutrition. The plasticity of the newborn tissues, their capacity for repair, the trifling hæmorrhage, the slight risk of life, the possibility of obtaining a broad, well-vascularized flap before the teeth have begun to encroach upon the mucous membrane, combine to make early infancy an opportune time for repairing the defect.

The author has no hesitation in commending the "Lane operation" as the most satisfactory for all varieties of cleft, providing the operation is done early. It is ingenious, rational, and satisfactory, and far superior to the older plastic methods.

The principle of the operation is to close in the interval between the edges of the cleft by muco-periosteum in the case of the hard palate, and by mucous membrane and submucous tissue in case of the soft palate. The features of the operation are the breadth of the flaps and the ingenious method of overlapping them so that the fissure is closed in by a curtain of tissue on which there is no tension and in which the play of the muscles is unimpaired. If harelip exists, the defect is repaired at the same time as the cleft palate.

One of the greatest difficulties which the author encountered was to get the child in a stable position for operating; this was satisfactorily solved by Miss Gothson, superintendent of Trinity Hospital, who devised a satisfactory sling by means of which the patient is held in a position which, while adjustable, does not shift. It consists of a sheet pinned about the child's body from the neck and extending beyond the feet so that the weight is borne at the shoulders, and the lower part of the sheet fastened to the operating table. Thus the child becomes a part of the adjustable portion of the table, and gives the operator a steady field on which to work.

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